



SUGAR PINE

The King of Pines

ITS CHARACTER, USES AND GRADES





FRONT COVER—Durability, ease of nailing, paintability and precise manufacture produce in Sugar Pine one of the world's finest woods for beautiful siding.

Tall, stately Sugar Pine trees are the largest of all the pines. They frequently grow to heights of 250 feet and diameters of nearly 12 feet.



"One beautiful and immensely grand tree . . . "

Royal Horticultural Society, London, England.



David Douglas F.L.S. 1799-1834
enlarged from a pencil drawing
© 1930 by his niece Miss Atkinson

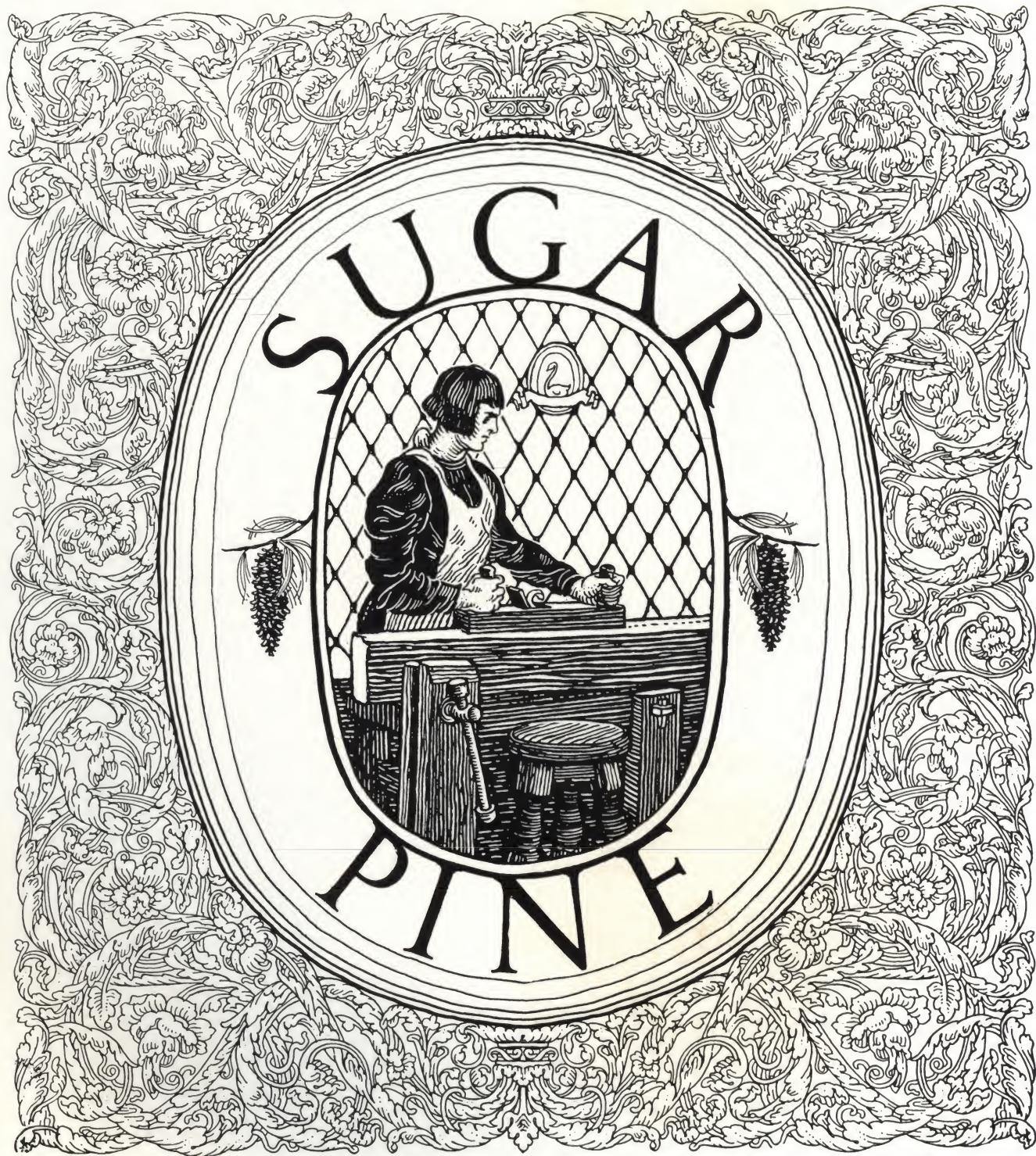
The Sugar Pine tree was discovered October 26, 1826, by David Douglas, a Scotch botanical explorer who named it *Pinus lambertiana* after an English friend. As an emissary of the Horticultural Society of London, Douglas was the first to make a botanical exploration of the Northwest portion of America. He landed on the afternoon of April 7, 1825, at the mouth of the Columbia River in Oregon.

In August, 1825, Douglas was encamped on a tributary of the Columbia. His journal records in these words the beginning of his search for the Sugar Pine: "In the tobacco pouches of the natives I found seeds of a remarkably large Pine, which they eat as nuts, and from whom I learned that it grows on the mountains to the South. No time was lost in ascertaining the existence of this truly grand tree, which I named *Pinus lambertiana*; but no perfect seeds could I find, and I returned to my rendezvous at Fort Vancouver." On Thursday, October 26, 1826, more than one year later, having arrived in California he says:

"I quitted camp early in the morning, to survey the neighboring country. About an hour's walk from camp, I met an Indian. To make him understand what I wanted, with pencil made a rough sketch of the Cone and of the Sugar Pine Tree which I wanted to obtain, and drew his attention to it, when he instantly pointed to the hills fifteen or twenty miles distant towards the South. At mid-day I reached the wished-for Pines, and lost no time in examining them and endeavoring to collect specimens of the seeds. One beautiful and immensely grand tree that had been blown down, had a circumference of 37 feet 9 inches at three feet from the ground; at one hundred and thirty-four feet, it was 17 feet 5 inches in circumference and the extreme length was 215 feet. The trunks are uncommonly straight, and the bark remarkably smooth, for such large trees, the branches drooping with cones hanging from their points like large sugar loaves in a grocer's shop. The growing trees, which have been burned by the natives to save the trouble of felling them or of collecting other fuel, produce a quantity of sugar-like substance, sweet to the taste.

"A little before this time of year the Indians gather the cones and roast them on the embers, then quarter them and shake out the seeds, which are afterwards thoroughly dried and pounded into a sort of flour, or else eaten whole."

—Extracts from the Original Diary
of David Douglas in Possession of Royal Horticultural Society.



The King of Pines

WESTERN PINE ASSOCIATION

Yeon Building



Portland 4, Oregon



"Noble as are its associates, the SUGAR PINE is easily king, and spreads his arms above them in blessing while they rock and wave in sign of recognition."—JOHN MUIR.

Foreword

Sugar Pine, because of the size achieved by mature trees, is indeed the "King of Pines." A genuine White Pine of fine, mellowed texture and generous dimensions, Sugar Pine lumber is produced from the largest of all the pines, growing chiefly in the lofty Sierra Nevada Mountains of California and in scattered tracts extending into southern Oregon.

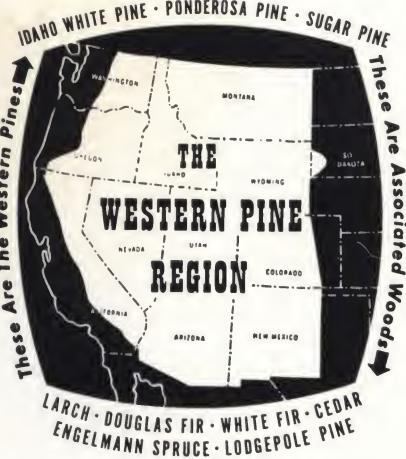
Nature's growing forces — moisture, sunlight, soil and warmth — have combined to produce in Sugar Pine one of the finest woods for the manufacture of superior cabinet-work, sash and doors, and interior and exterior woodwork of all kinds and for fabrication of industrial patterns and precision wood instruments.

Best available estimates place the current standing sawtimber inventory of Sugar Pine at twenty-three billion (23,000,000,000) board feet. Annual production during periods of normal business activity approximates three hundred and ten million (310,000,000) board feet. The two figures are positive demonstration that the sup-

ply of Sugar Pine is sufficient for many years to come.

Moreover, they fail to include the many young Sugar Pines of sapling and pole size which, under Tree Farm programs and other enlightened methods of forest management practiced by many operators, are constantly growing to sawtimber size and providing replacement for the old and over-mature trees now being harvested. With the harvest of huge, over-mature trees whose growth rate has fallen to a minimum, static forests — where disease and decay overbalance new growth — are transformed into young, vigorous timber croplands where the risk of insects, disease and fire is at a minimum and growth is at a maximum.

Part of the historic genuine White Pine tradition of outstanding quality, Sugar Pine has been successfully used for all building purposes since its discovery. This publication is designed to acquaint the dealer and user of wood, and the general public as well, with the premium characteristics of Sugar Pine.



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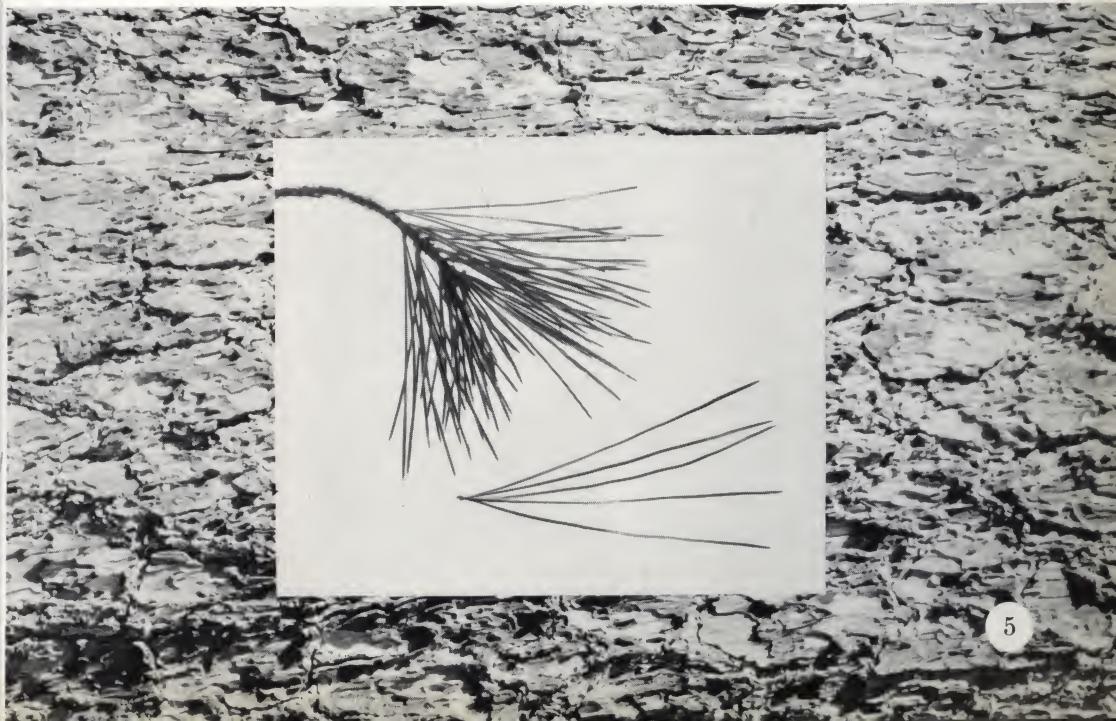


The Character of **SUGAR PINE** **The King of Pines**

Prior to the signing of the Declaration of Independence, the great state of Massachusetts selected the Pine Tree as the emblem for its state flag partly, perhaps, because White Pine had played so important a part in providing material for the shelters of colonists in that state.

As new settlements sprang up elsewhere, White Pine lumber was sure to be found in some degree in the buildings that were erected. Now, more than 300 years later, countless New England homes built largely of White Pine stand, as if imperishable, in silent testimony to the wisdom of those early settlers. On the Pacific Coast, the history of true White Pine has repeated itself, for old homes of many Western pioneers who built with this wood (Sugar Pine in California) remain as sturdy monuments to the workmanship of their builders and the material they used.

And those same fine properties are incorporated in the lumber produced by Sugar Pine mills today—fine, high quality lumber precisely manufactured, thoroughly seasoned and carefully graded to the high standards of the Western Pine industry.

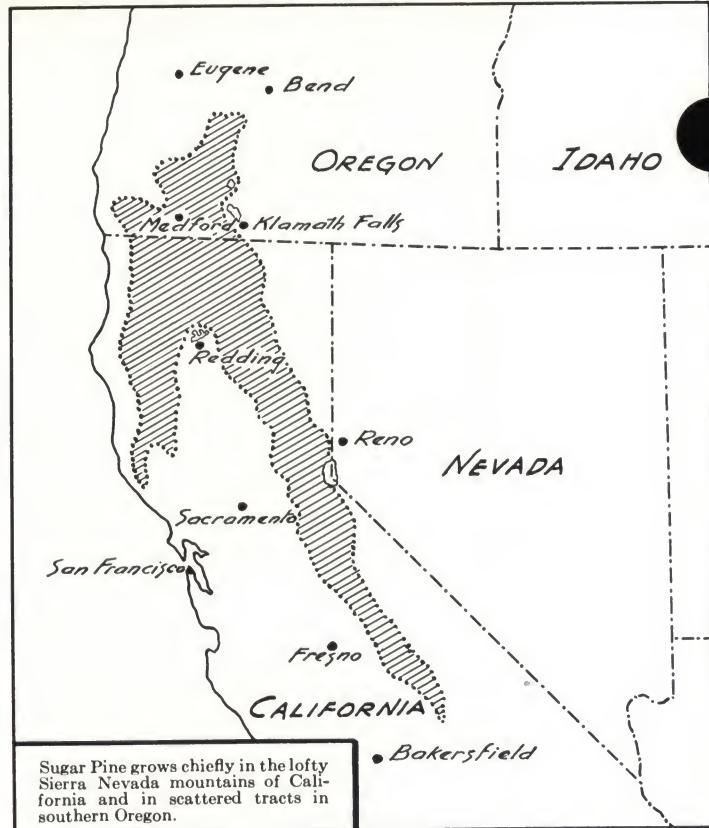




Sugar Pine forests regenerate themselves naturally. Here young growth springs up around the stump of a harvested over-mature tree.



Many owners of Sugar Pine timberlands have established Tree Farms wherein forests are managed to produce successive crops.



Botanical Classification

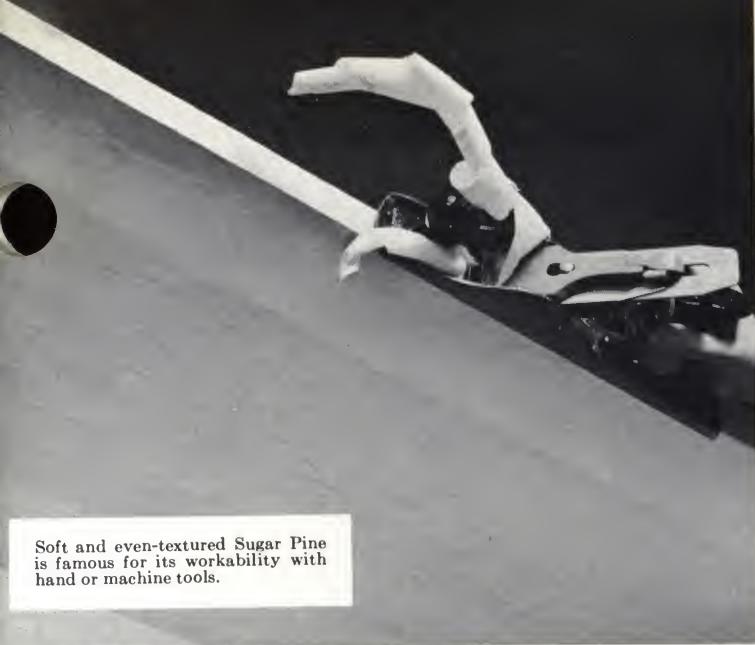
Sugar Pine (*Pinus lambertiana*) is one of three commercially important genuine White Pines growing in the United States. It has five slender needles in each cluster or sheaf, a characteristic common to the three White Pines which has caused them to be known as "five needle pines." The clusters occur in feathery tufts along graceful branches, often pendant tipped with cones.

Wood of the three genuine White Pines is so similar that the Forest Products Laboratory reports, "There is no absolutely positive means of identifying the three White Pines one from another microscopically."

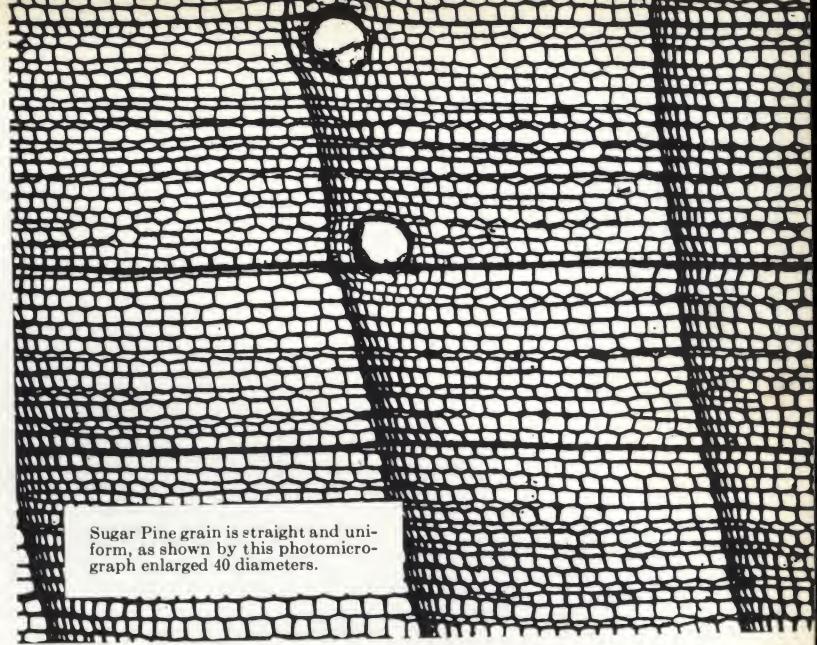
The Sugar Pine tree is the largest of all pines, some of them reaching heights of up to 250 feet and diameters of nearly 12 feet. Average mature trees range from 160 to 180 feet in height with diameters of from 4 to 7 feet. Foliage is a deep blue-green with a whitish tinge; needles are from $2\frac{3}{4}$ to 4 inches long.

The cones, unique among all pines for their huge size and form, are from 12 to 16 inches long and $2\frac{1}{2}$ to $3\frac{1}{2}$ inches in diameter; occasional specimens reach 23 inches in length. They hang from the extreme tips of upper branches like ornaments on a Christmas tree.

Bark on the mature Sugar Pine is deeply furrowed longitudinally and the ridges are broken to form long irregular plates. It is from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches thick and grayish-brown in color.



Soft and even-textured Sugar Pine is famous for its workability with hand or machine tools.



Sugar Pine grain is straight and uniform, as shown by this photomicrograph enlarged 40 diameters.

Appearance

The wood of Sugar Pine is a beautiful, soft-toned creamy white which darkens to a pale brown, sometimes tinged with pink, as it ages. The grain is indistinct despite the fairly rapid growth of the species. Small ducts running lengthwise with the grain are common and the knots characteristically show dark purplish-brown bands around their edges.

Structure

Springwood and summerwood of Sugar Pine are uniformly soft, thin-celled and straight-grained, properties which account for its exceptional working ease with either hand or machine tools and for its lustrous, silken-smooth finished surfaces.

The sap ring on most Sugar Pine trees, even those of largest diameter, is relatively small (from three to four inches) leaving the major portion durable heart wood.

Weight

Specific gravity of Sugar Pine is .33, compared to the .35 average of all White Pines, at 12 per cent moisture content. At the same state of seasoning, the avoirdupois weight is 25 pounds per cubic foot against the White Pines' 26-pound average. Variation among the important commercial softwoods ranges from 23 pounds for Engelmann Spruce to 41 pounds for long leaf pine.

Strength

Sugar Pine compares favorably with the other commercially important softwoods of similar weight and density in basic stress ratings. Not a structural wood, it is not intended to compete with the harder, denser, tougher-textured construction species used for dimension and timber.

It is, however, strong for its weight and furnishes support without adding unnecessary load. The follow-



Sugar Pine is strong for its weight. It is used throughout residential and light commercial construction, including porch columns like these.

ing table lists the index relationship of Sugar Pine to other commonly used softwoods in five basic stresses:

	Sugar Pine	White Pine Average	Engel- mann Spruce	Larch
Bending (as a beam) . . .	64	65	55	89
Compressive (as a post) . . .	68	70	57	104
Stiffness	112	119	100	153
Hardness	38	36	32	64
Shock Resistance	55	58	45	81



The dimensional stability of Sugar Pine is proven by its wide use for cabinet work where close tolerances are demanded for smooth operation and neat appearance.



Minimum shrinkage and swelling are vital to top quality finish woods. Here's an example of Sugar Pine cabinetwork and its precise clean-line beauty.

Shrinkage

Volumetric shrinkage of Sugar Pine is the least of all the pines. Dried from a green state down to 12-15 per cent moisture content, the wood will shrink only 4.0 percent—close to the bottom of the 3.4-6.3 range of the commercially important softwoods and well under the 5.4 average of all North American pines.

All wood shrinks as it dries and swells as it absorbs moisture—the heavier, denser woods to a greater extent than the lighter species. But wood, unlike metal, expands and contracts only very slightly with changes in temperature. The low shrinkage and expansion coefficients of Sugar Pine are in part responsible for its popularity in industrial pattern-making, for woodwork and for other precision work in wood utilization. Raised grain, which develops from uneven shrinkage in flat-grained pieces of some of the heavier woods, is not found in Sugar Pine because of its uniform texture and low shrinkage.

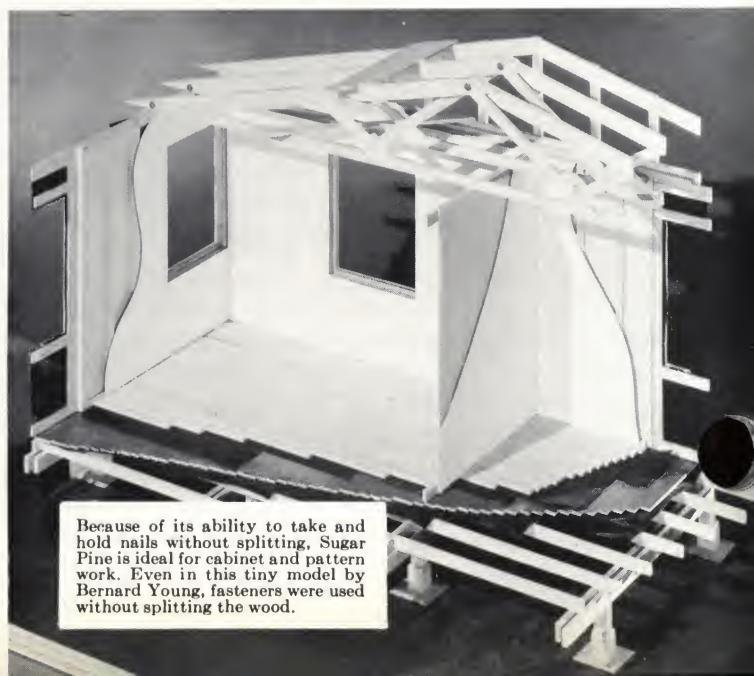
Dimensional Stability

Dimensional stability—the ability of a wood to stay in place under conditions of use—is chiefly dependent upon coefficients of shrinkage and swelling and upon moisture content at time of installation.

When Sugar Pine is manufactured and properly seasoned by kiln or air drying to correct moisture content, it is one of the most stable of all the pines in volumetric changes caused by moisture variations that might be encountered in some installations.

Nailability

Abilities to take fasteners without splitting and hold them against withdrawal forces comprise wood's nailability. In common with the other soft pines, Sugar Pine is exceptionally resistant to splitting, chiefly because of



Because of its ability to take and hold nails without splitting, Sugar Pine is ideal for cabinet and pattern work. Even in this tiny model by Bernard Young, fasteners were used without splitting the wood.

its low density and soft uniform texture and grain. The absence of hard grain eliminates nail deflection or the need to drill holes prior to driving nails.

Because of the wood's minimum splitting tendencies, large fasteners may be used to compensate for the lower withdrawal resistance found in species of low density. The thorough seasoning of Sugar Pine is another factor in practical resistance to withdrawal. Wood fibers in green lumber, into which nails have been driven, shrink away from the nails as the lumber dries out. Shipped dry and installed dry, Sugar Pine grips fasteners as firmly years after nailing as when first nailed.

A good test of toughness and cohesion of wood fibers in different kinds of woods comprises the driving of a screw, removing it, and then driving it into the wood adjoining the first screw hole. Done in brashy, hard-textured woods, the fibers separate and break, and the area loses its holding power. Flexible, strong Sugar Pine fibers yield without breaking, leaving the wood structure intact.

Workability

The superior workability of genuine White Pine has long been universally recognized throughout the wood-working industry. With either hand or machine tools, Sugar Pine's fine, even-grained texture enables ready fashioning into smooth, straight surfaces or free shapes. Straight of grain and with minimum tendency to split or sliver, it has been the standard top quality wood-working material for generations.

Extremely stable dimensionally and light in weight, Sugar Pine is one of the best wood species for working into precise forms of any dimension, large or small. Machined to pattern for paneling or siding, it produces satin-smooth surfaces for finest architectural purposes.



Sugar Pine's extremely high workability has made it the No. 1 choice of woodcarvers the country over. Straight of grain and with minimum tendency to split or sliver, it has been the standard woodcarving material for generations.



The superstructure of this Bernard Young model of McNary Dam on the Columbia river was made entirely of Sugar Pine because of its excellent workability to small, precise sizes.



The ability of Sugar Pine to take and hold enamel and other finishes is one of the important reasons for its extensive use in the architectural woodwork field.



For interior and exterior use, Sugar Pine's paintability provides handsome woodwork finishes like this.



The high workability of Sugar Pine and its ability to take and hold finish coverings is well demonstrated in this extraordinary carving.

Ability to Take Finishes

Sugar Pine, like other soft pines, takes and holds paint and varnish finishes with a smoothness and tenacity unmatched by other commonly used softwoods. The uniform texture tends to prevent grain raising. Its low density provides surfaces to grip paint coverings tightly and hold them for long periods of time.

Sugar Pine does not require special paint mixtures or extraordinary methods of application for good results. Its light color demands fewer coats than darker colored woods. Stains penetrate evenly to insure consistent color over large expanses.

The wood is particularly attractive in a natural finish, protected only by wax, linseed oil or clear varnish. It mellows to a rich red-brown with age. For modern or colonial stylings, Sugar Pine in clear or knotty grades is a continuing favorite with architects and interior decorators.

Preservatives

Used in contact with the soil, all wood should be given a preservative treatment. Sugar Pine's thin-walled cells and even texture permits maximum penetration of all commercial preservatives. No incising is required to assure adequate depth of penetration.

For all recommended uses, Sugar Pine will not deteriorate because of decay if sound construction and reasonable maintenance standards are employed.

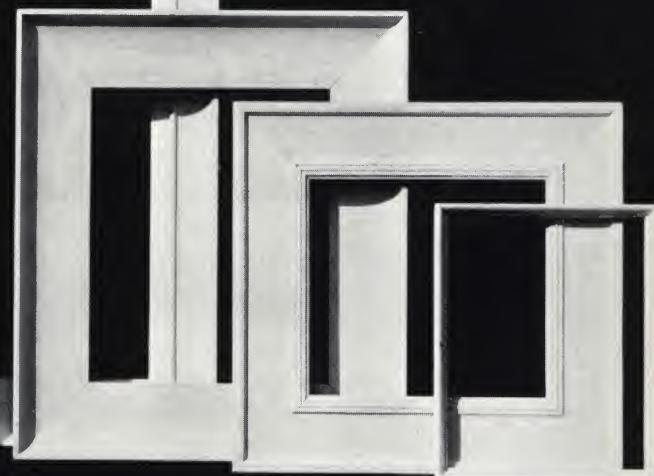
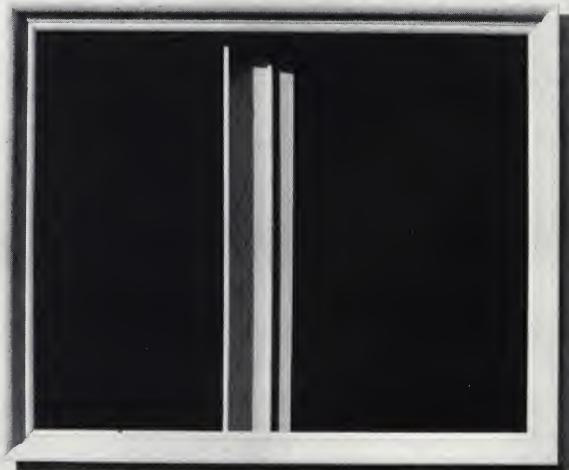
Gluing

Over a long period of years, Sugar Pine has demonstrated its affinity for glue in such diverse articles as large foundry patterns, piano keys, drawing boards,



Sugar Pine lends itself to stain, varnish and natural finishes as well as it does to paint coverings.

For foundry patterns, piano keys, drawing boards, for picture frames like these, and for many another use, the glueability of Sugar Pine is an important characteristic of the wood.



doors and cabinet work. Uniformity of texture and consistency of grain insure positive, long lasting glued joints.

Permanence

The durability of genuine White Pine was proved nearly 300 years ago by the colonial settlers of New England. And each year adds another chapter to the centuries-old demonstration. Structures like the Fairbanks House at Dedham, Mass. (built in 1636), the Governor Bradstreet House (1667), Cowles House (1795), Gay Mansion (1795), and Congregational Church at Canterbury, Conn. (1803), continue to stand and serve today, ignoring time and the elements, virtually indestructible monuments to the soundness of their construction and material.

In the west, history is younger. But Sugar Pine, another genuine White Pine, was the material at hand when pioneers came to California in search of gold more than a century ago. They built of Sugar Pine, lacking paint for the most part, and glass for their windows. Preservatives were unknown. But many of their structures have remained through years of neglect, facing the rain, sun and heavy snows of passing seasons, still sound and serviceable.

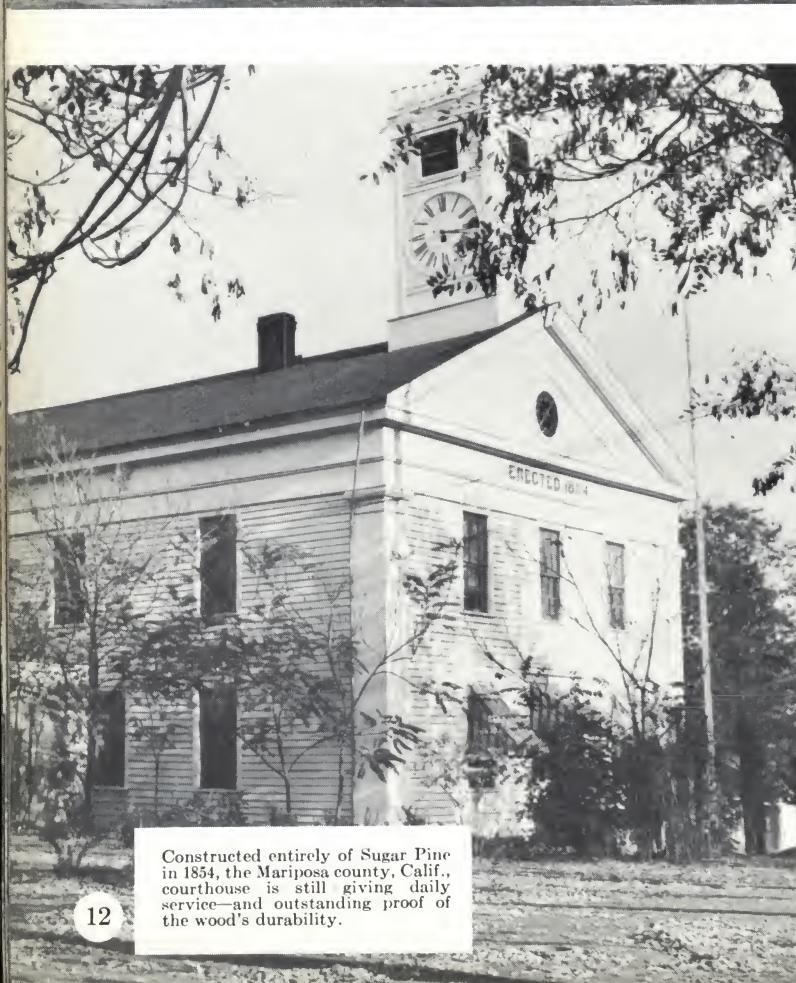
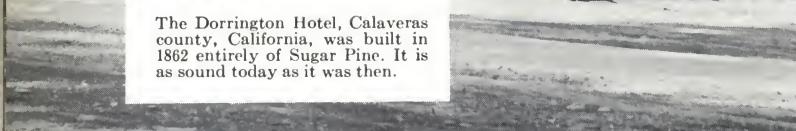
The roll call is California history: the Nichols cabin at Fresno Flat; Cedar Cottage, known as Hutchings Hotel when it was built in 1859 in Yosemite Valley; the Mammoth Trees Hotel built at Calaveras Grove in 1853; the Gould Cabin at Chester Flat whose Sugar



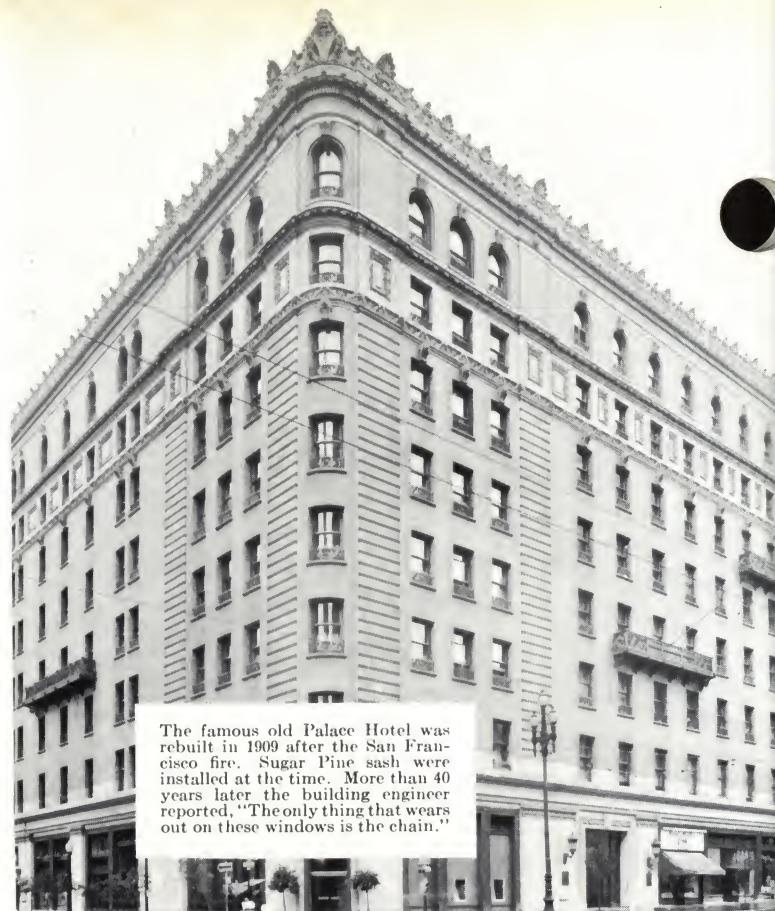
Sugar Pine counter tops, free from grain raising under repeated scrubings, do not harbor food odors. And the glueability of the wood enables laminated counters to hold their shape under hard use.



The Dorrington Hotel, Calaveras county, California, was built in 1862 entirely of Sugar Pine. It is as sound today as it was then.



Constructed entirely of Sugar Pine in 1854, the Mariposa county, Calif., courthouse is still giving daily service—and outstanding proof of the wood's durability.



The famous old Palace Hotel was rebuilt in 1909 after the San Francisco fire. Sugar Pine sash were installed at the time. More than 40 years later the building engineer reported, "The only thing that wears out on these windows is the chain."



Pine shingles still were sound when the structure was dismantled after 67 years.

Sugar Pine durability is based on several inherent properties. Weathering action (exposure to alternate periods of sun and moisture) causes shrinkage and swelling of surface layers of all wood. If the wood has a high coefficient of volume change, or if the texture is not uniform, the weathering action causes greater stresses within the piece, resulting in separation of surface fibers, marked grain raising, or both. Sugar Pine's low shrinkage and swelling and its uniform grain and texture resist weathering action by minimizing fiber stress, impeding checking, splitting, grain raising and other evidences of structural breakdown.

While Sugar Pine is famous for durability, its resistance to weathering may be increased and its appearance altered by an adequate paint covering. Here again the ability of Sugar Pine to grip paint tightly helps fight deterioration by holding the finish treatment longer than harder textured species.

Insulation

Wood is a natural insulator for it is composed of countless tiny cells or air spaces. Insulation value is in inverse proportion to density—the lower the density the better the insulation.

One of the least dense of all softwoods, Sugar Pine is one of the best insulators. Thus it furnishes a bonus quality in siding, sheathing, paneling, subflooring, doors, sash and other barrier uses.



The huge size of Sugar Pine logs requires special manufacturing care. For years, that special care has been an inherent part of the entire Sugar Pine manufacturing process.

THE MANUFACTURE OF SUGAR PINE

The highest standards of care and quality are a tradition among manufacturers of Sugar Pine who cater to the exacting requirements of the industrial pattern maker and architectural woodwork plant. Since it became a commercially important species in the markets of the nation, shortly after the turn of the century, Sugar Pine has been seasoned, milled and graded with constantly increasing attention to each step in the manufacturing process from harvesting of the tree to shipment of the finished lumber.

Sugar Pine mills are among the most modern in the entire lumber industry. Refinements in machinery and methods have been adapted to production practices as rapidly as they have been developed and proven through the years. Today's Sugar Pine mills are outstanding examples of lumber production efficiency, geared to turn out fine, top quality stock for all building, industrial and specialty purposes.

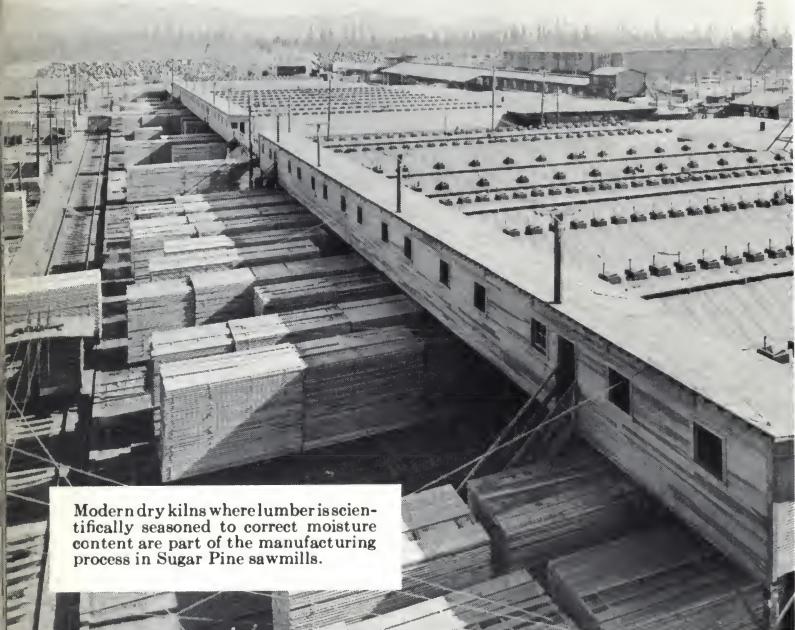
Seasoning

Sugar Pine is seasoned in modern dry kilns or under scientific air-drying methods and schedules before it is surfaced or machined to pattern.

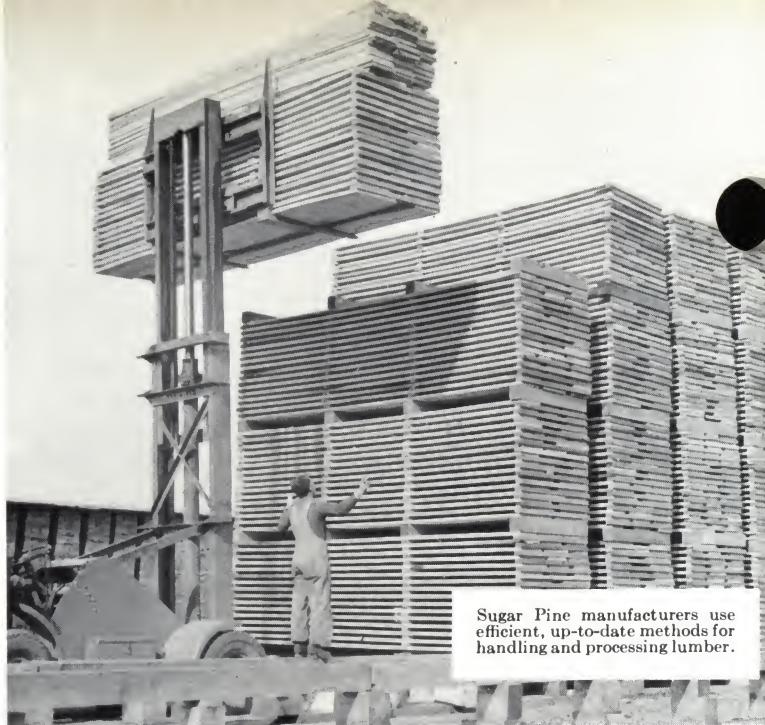
The mills, through the Western Pine Association, are constantly seeking better and faster methods of seasoning lumber. The Association's laboratory conducts con-



Precision production of mouldings and paneling is a feature of many Sugar Pine mills.



Modern dry kilns where lumber is scientifically seasoned to correct moisture content are part of the manufacturing process in Sugar Pine sawmills.



Sugar Pine manufacturers use efficient, up-to-date methods for handling and processing lumber.

tinuing studies on dry kiln operations and methods and the improvements derived therefrom are incorporated into mill practice.

Milling

Sugar Pine permits unexcelled millwork when processed with high-speed, modern machinery designed to produce satin-smooth finished surfaces and precise sizes. The naturally soft, even texture of the wood surfaces

evenly to accurate dimensions and exact patterns. Sugar Pine is milled *after* seasoning — *after* the normal shrinkage in drying has taken place.

At member mills of the Western Pine Association, the dimensions, surfacing, grading and general appearance of all finished material are checked by Association inspectors at the time monthly grade inspections are made at each plant.

Grading

Please turn to Grading section on page 25.

Identified Lumber



This seal, the trademark insignia of the

Western Pine Association, and the distinctive and well

known species mark,  , are registered in the

U. S. Patent Office. These marks can rightfully be placed on lumber only by a Western Pine Association inspector or by qualified graders at mills where grading practices are regularly inspected by the Association's Bureau of Grades, under whose jurisdiction the marks are used. Uniformity of products from widely separated mills is maintained through the constant supervision all member mills receive from the Bureau.

Marking of lumber by grade is done upon request at any mill manufacturing Sugar Pine. Member mills of the Association can also forward a "Shipper's Manifest of Car Contents" in the car to identify by species, grades and sizes the amounts and exact descriptions of all items.



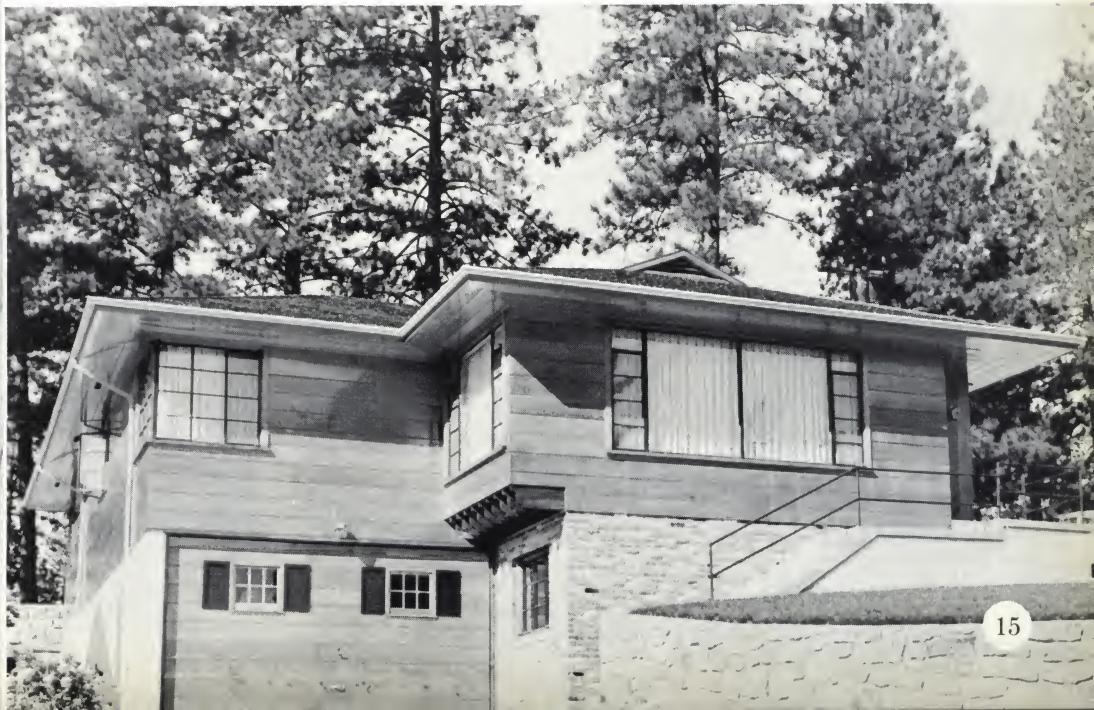
For more than a quarter of a century, the Western Pine Association research laboratory has conducted continuing experiments resulting in better manufacture and increased use of the Western Pines and Associated Woods.



Building and Industrial Uses of SUGAR PINE The King of Pines

The selection of a material to accomplish a given task is a serious business. It's the end result of hours of study into costs, present and future availability, long-term utility, the physical and mechanical properties of the material itself, and a familiarity with the history of the material's performance under actual use conditions.

In the preceding pages, discussion has covered the properties of Sugar Pine, and the care devoted to its manufacture into lumber. In the following pages, the major uses of Sugar Pine, detailed material requirements for each use and applicable Sugar Pine properties are outlined together with pictorial demonstrations of actual installations—illustrating the specific adaptability of Sugar Pine to a multitude of building and industrial uses.





Excellence of manufacture superimposed on Sugar Pine's inherent suitability for siding produced the immaculate beauty of this handsome home.

Siding

Appearance and protection against the elements are the primary functions of siding. Resistance to weathering, fine manufacture and good paintability are essential to siding material. Insulation value is important. For application, the material must be light in weight and easily nailed without splitting. It should be available in a wide range of styles to all architectural requirements.

Those requirements constitute a listing of Sugar Pine properties and explain the tremendous popularity of the species for siding from the days of '49 right down to the present. Durable, well manufactured, easily paintable, highly insulative, light in weight and easily nailed, Sugar Pine is produced in a range of patterns to fit any

architectural demand from a replica of early Colonial to the clean-lined beauty of modern.

Economy Siding

Economy Siding — produced from sound-knotted common grades — has become a fixture in Sugar Pine production schedules through elimination of the former hazard of paint failure over knots after installation. A new sealer developed by the Western Pine Association Research Laboratory and known as WP-578 Knot Sealer, when applied over knots before painting, completely halts leaching of knot resins which once resulted in paint discoloration and eventual failure on exterior surfaces.

Now manufactured by nearly 100 paint and varnish



Durability, workability and paintability are outstanding characteristics of Sugar Pine siding.



Industry-sponsored development of WP-578 Knot Sealer expanded the availability of Sugar Pine siding by enabling the use of upper Common (knotty) grades without fear of premature paint failure caused by bleeding of knot resins.



The wide range of patterns in which Sugar Pine sidings of both clear and knotty grades are available makes the wood equally at home in any style of architecture.

producers throughout the country, WP-578 enables use of the Common grades of Sugar Pine for siding. It thereby greatly enlarges the available supply of Sugar Pine siding.

Economy Siding of Sugar Pine may be secured in the same wide range of standard patterns and sizes once obtainable only in Select grades. Sealed with WP-578, it stands the tests of durability or appearance.

Sheathing

Good sheathing material must provide strength, stiffness, insulation and secure nailing surfaces. It must also be readily workable on the job site, be dimensionally stable, accurately sized and furnish smooth surfaces for perfect alignment of covering siding.

Sturdy Sugar Pine provides all these necessary qualities for sheathing in full measure and its adaptability for this purpose has been well proven in the building field.

Subflooring

Serving the same general function as sheathing, subflooring furnishes insulation, stiffness and a smooth, easily nailable surface for flooring.

Characteristics which fit Sugar Pine for sheathing apply in equal force to its use as subflooring. Readily workable, easy to handle on the job and possessing ample bending strength, it has a long history of satisfactory performance.



Dimensional stability, insulative quality and easy workability feature sheathing of Sugar Pine.



An unusual use of Sugar Pine demonstrating its versatility and strength is this flooring in a shipyard pattern loft. The same properties fit the species to widespread use as subflooring, roof decking and concrete forms.



Roof decking of Sugar Pine furnishes durability, strength and a good nailing surface for covering shingles.



Fine manufacture, dimensional stability and minimum grain raising produce in Sugar Pine an excellent concrete form material.

Roof Decking

Roof decking, like sheathing and subflooring, supplies stiffness and strength to the frame, provides insulation and a flat, smooth nailing surface for shingles.

The identical natural characteristics of Sugar Pine which fit it ideally to sheathing and subflooring make it a preferred material for sound, dependable decking.

Concrete Forms

Varying but little dimensionally under moisture change, providing smoothly-milled flat surfaces and easily nailed without splitting, versatile Sugar Pine is unusually adaptable to use as concrete forms, which generally are later applied as decking, subflooring or sheathing.

Impact and weight of wet concrete produces in some species dimensional change and grain raising which prevents their later use in the building. Sugar Pine's resistance to both assures its usability after forms have been dismantled.

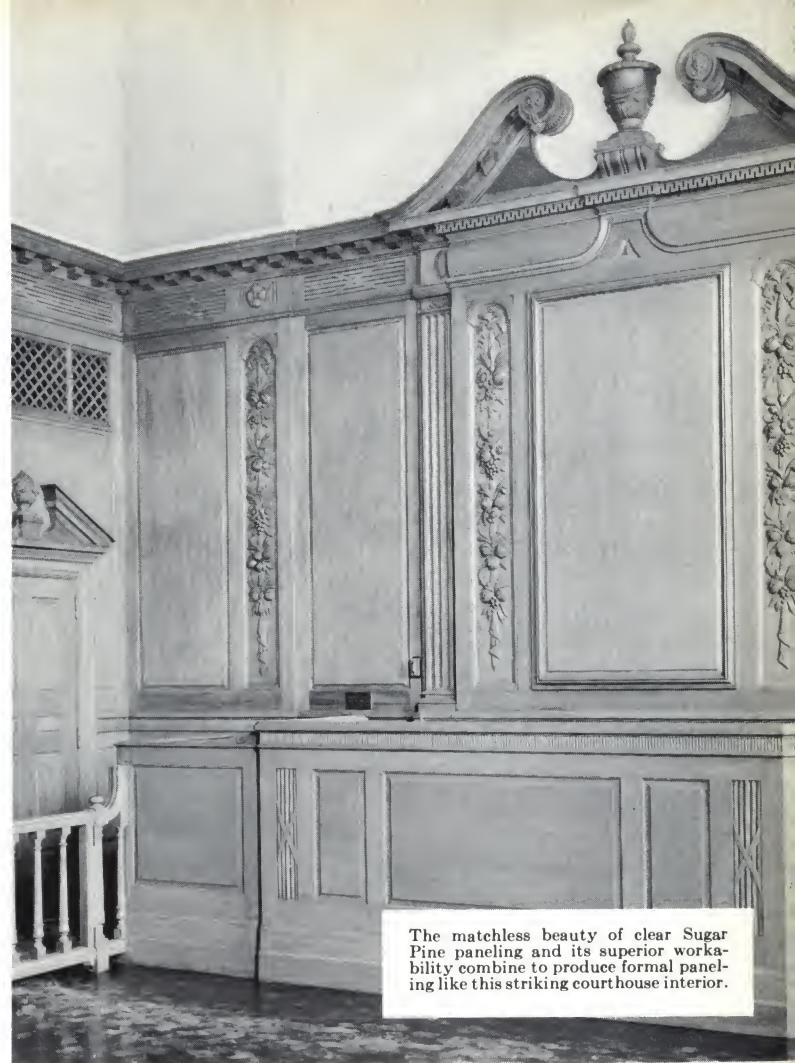
It is an ideal wood for concrete forms and subsequent permanent installation in the finished structure.



Perennial favorite for interior wall surfaces is Knotty Pine paneling. Distinctive in grain and knot structure, Sugar Pine is one of the most popular of all.



Ruggedness, beauty and easy maintenance perform real services for the woman whose kitchen is paneled with Sugar Pine.



The matchless beauty of clear Sugar Pine paneling and its superior workability combine to produce formal paneling like this striking courthouse interior.

Paneling

Pine paneling is an American tradition. From Colonial times down to the present, in unbroken popularity, it has decorated the walls of fine American homes, bringing beauty, durability and a feeling of security to many generations.

Sugar Pine is part of the tradition. One of the most beautiful of all the pines, its subdued grain, soft-toned creamy white color and unexcelled workability have made it an outstanding favorite for top quality paneling installations in homes, offices and public buildings.

In either knotty or clear grades, Sugar Pine's easy adaptability to any type of finish—enamel, stain, varnish or wax—fits it precisely to every architectural theme. And the ease with which it works to precise patterns assures high fidelity to exacting design demands. For knotty Early American stylings or for clean-lined modern surfaces unrelieved by ornamentation, it provides the perfect material. Technically, Sugar Pine paneling is dimensionally stable, high in insulation value, easy to nail without splitting and resistant to the small scuffs and scratches of everyday wear.

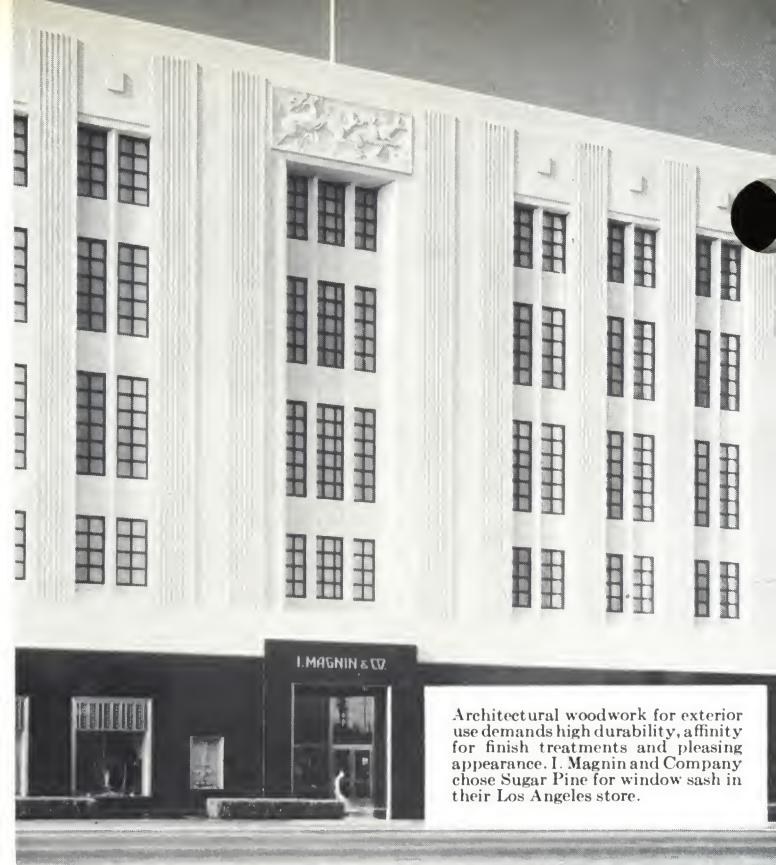
It is economical to apply, easy to maintain and available in a wide selection of standard patterns.



Adaptability of Sugar Pine to the host of finish treatments and its high workability to intricate patterns provide unique paneling and woodwork treatments like this.



Unsurpassed workability to exacting design requirements is a characteristic found in only few woods. Sugar Pine is one of them. This is an example.



Architectural woodwork for exterior use demands high durability, affinity for finish treatments and pleasing appearance. I. Magnin and Company chose Sugar Pine for window sash in their Los Angeles store.



From colonial to contemporary, architectural design finds its truest expression in Sugar Pine woodwork.

Architectural Woodwork (Stock)

Stock architectural woodwork embraces the fabrication of all standard size window and door frames, doors, sash of all types, shutters, screens, porch columns, stair-work, cabinet units and other similar interior and exterior wood building products.

Manufacturing requirements include easy workability, dimensional stability, good nailability, high glueability, light weight and freedom from excessive pitch, gums or coloring matter—all inherent properties of Sugar Pine from which countless stock woodwork articles are produced each year.

Sugar Pine has the added ability to withstand scuffs, shocks and jars without splitting or slivering, important factors in doors and door frames and windows and window frames subject to movement or impact in use. Its dimensional stability suits it most ideally to precisely fitting moving parts.

Sugar Pine is architecturally adaptable to fit a vast variety of interior and exterior styles and lends itself to a multitude of different finishing treatments.

Architectural Woodwork (Special)

Special architectural woodwork is defined as all wood-work of other than standard size and design, generally made on order to fit special circumstances. Also known as special cabinetwork, it covers fabrication of permanent furniture, or built-ins, such as book cases, dressing tables, linen closets, cupboards, china closets, breakfast nooks, ironing boards, sugar and flour bins,



Historic structures demonstrate the durability of Sugar Pine woodwork. New buildings like this, where all window sash is of Sugar Pine, demonstrate its qualifications for modern requirements of beauty and design.



The timeless charm and hospitable warmth of Sugar Pine woodwork sets the mood for architectural enchantment inside and outside.

special doors and windows, frames and a host of other special and semi-special exterior and interior products.

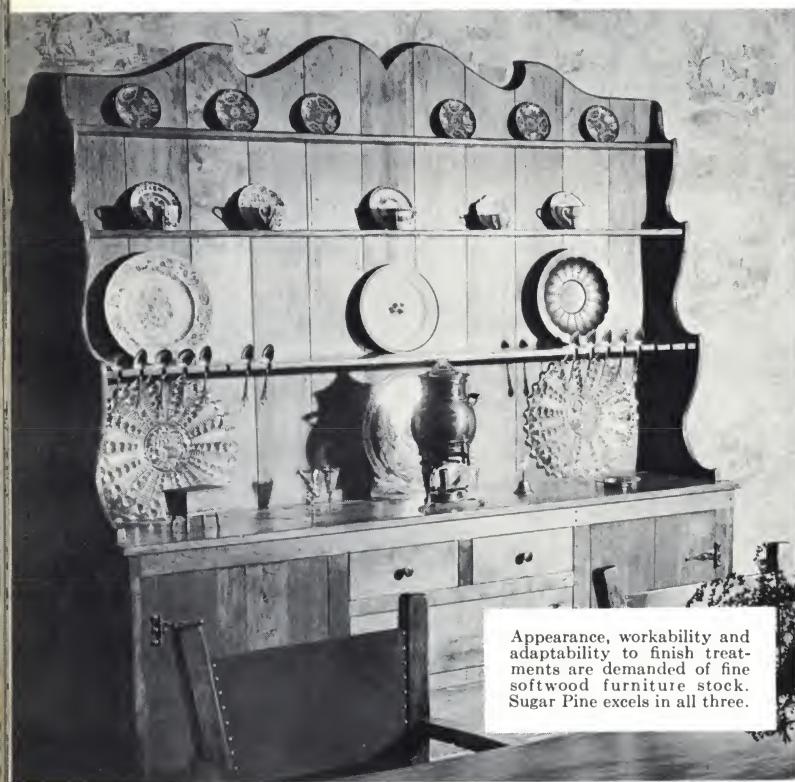
Material properties for special woodwork are the same as those for stock articles with particular attention to hand workability and design adaptability. The soft and uniform texture of Sugar Pine and its resistance to splitting, coupled with its beautiful grain and ready ability to take and hold finishes, have made it the premier wood for special woodwork installations throughout the country. In particular it has been widely used in residences, clubs, offices, churches, restaurants, hotels and store buildings.

For either special or stock woodwork for exterior use, Sugar Pine's proven durability is an important factor in door frames and window sash and frames where free movement is apt to be impaired by exposure to weather. Dimensional stability of the species has permitted continued easy operation of moving woodwork parts even after 40 years of daily operation and continuous exposure.

Original Sugar Pine window sash (probably among the largest and heaviest hotel windows in the country) in San Francisco's famed Palace Hotel, installed in 1909, still give trouble-free service. Windows and window frames in the Monadnock Building, San Francisco, were installed in 1906. After nearly 45 years of exposure to the Bay Area's intermittent fog and sunshine, they operate perfectly. Numerous other installation in private residences and public buildings the country over support the outstanding record of Sugar Pine sash and frames through long periods of service.



One of the most exacting uses known to wood occurs in musical instrument manufacture. For piano keys, Sugar Pine provides dimensional stability, workability, glueability—all of them vital to quality.



Appearance, workability and adaptability to finish treatments are demanded of fine softwood furniture stock. Sugar Pine excels in all three.



Wood novelties, usually small and frequently intricate, demand exceptional workability and fine finish. Sugar Pine, workable with and against the grain and adaptable to handsome treatment, cannot be excelled.

Piano Keys and Organ Pipes

Piano keys, piano action parts and organ pipes are highly specialized wood uses; few woods contain the dimensional stability and resistance to splitting demanded by precisely-fitting, freely-working keys or resonant pipes subject to intense vibrations.

Sugar Pine is the most generally accepted wood for keys, pipes and other parts of piano and organ construction. Its easy workability is vital to fabrication and material economy. Its glueability (for hardwood and ivory overlays and other places where metal fastenings cannot be used) is essential.

Wood Novelties and Specialty Cuttings

The same general properties required of pattern stock and piano keys and organ pipe material are necessary to some degree in the fabrication of toys, fence pickets, window shade slats and rollers, drawing boards, pastry boards, drain boards, turned table legs, softwood furniture, silk reels, and a myriad of other miscellaneous industrial articles.

In virtually every case, workability, adaptability to paint and varnish coverings and usability without waste are primary considerations. Light weight, absence of excessive resin and dimensional stability are also important.

Sugar Pine, containing each characteristic in generous amounts, has long been one of the preferred species for specialty cuttings.

Wood Carvings and Wood Turnings

Sugar Pine is the first choice of the nation's wood-carvers and makers of special turned and scrolled wood-work because of its exceptional workability with hand

and machine tools with or against the grain, its uniform texture and its straight grain.

Easily shaped into small, unsupported designs, yet sturdy enough to withstand normal crushing, denting or splitting forces, it also glues easily and solidly into large, built-up sections.

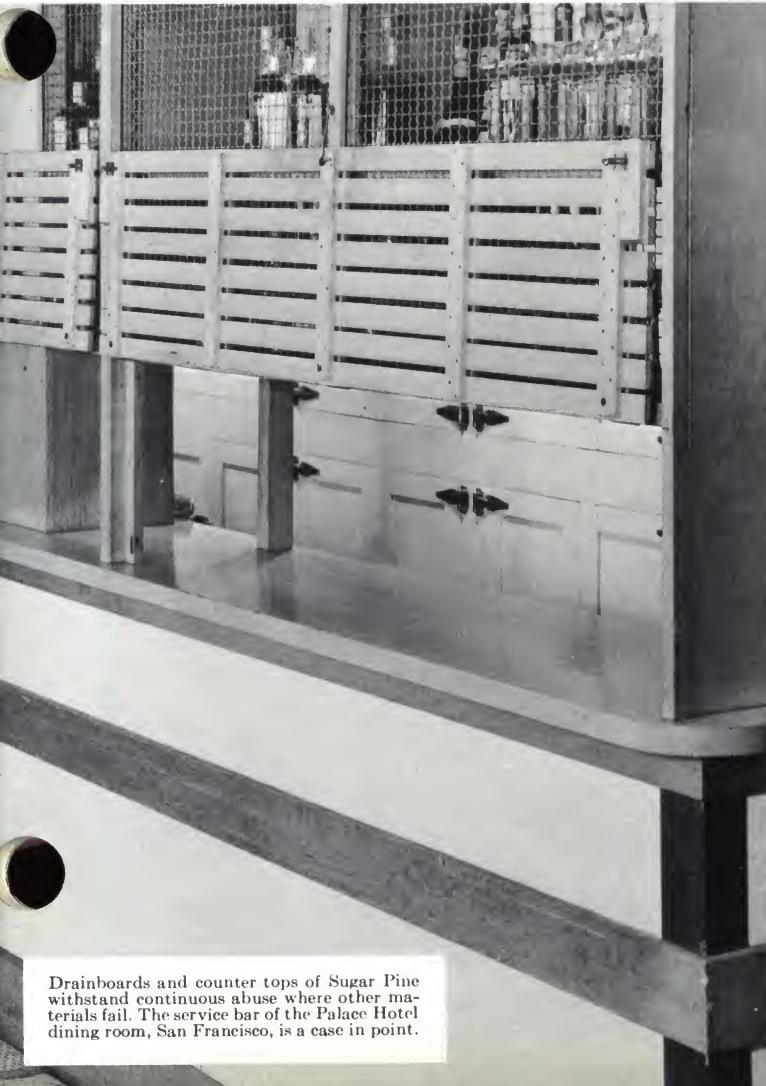
For the jackknife-equipped amateur or the skilled craftsman turning out exact replicas of ornate filagreed historical decorations, Sugar Pine combines all the properties necessary for easy workmanship to precise dimensions.

Foundry and Casting Patterns

Industrial foundry patterns require far more exacting performance from wood material than do most other uses to which wood is put. Light weight is important for ease of handling. Easy cutting is essential. The wood must cut in any direction, with or across the grain, and respond readily to sharp tools without causing unnecessary dulling.

The wood must be reasonably soft (without being pithy), straight grained, uniform in texture and possess a cohesive fiber that does not "fuzz up."

Dimensional stability is of utmost importance because



Drainboards and counter tops of Sugar Pine withstand continuous abuse where other materials fail. The service bar of the Palace Hotel dining room, San Francisco, is a case in point.



Without peer as the nation's No. 1 wood for hand carving, Sugar Pine's soft texture and uniform grain permit fine delineations like these wherein woodworking becomes an art.



In the modern monotony of faceless facades, spectaculars of hand-carved Sugar Pine call for attention like a crisp breeze on a muggy day.



The most demanding of all industrial uses, pattern-making requires dimensional stability, nailability and, most important of all, workability, to produce uniform castings. Sugar Pine is one of the most widely used woods in America.



For large patterns or small, Sugar Pine has the strength and stability, combined with softness and workability, to fill the toughest of requirements.

the permanent usefulness of a pattern depends upon its ability to keep its shape. Subsequent castings must be as accurate as the first.

Most patterns are assembled by the use of nails and screws; lifting plates must be attached for convenient handling. A good pattern wood must receive nails and screws without splitting, even when they are driven close to the edge, and hold them tightly. It must glue well and grip paint and varnish firmly.

Many patterns, for large castings, require wide, thick lumber for their economical construction.

These are exacting specifications. Any appreciable deviation by the pattern stock doesn't just make it less satisfactory; it renders it unusable. There are few woods whose properties fulfill these demands. Sugar Pine is one of them; it is, in fact, the most nearly perfect pattern material commercially available. Its weight, uniform texture, strength, glueability, dimensional stability and size conform exactly to the requirements.

The adaptability of Sugar Pine to pattern making is its finest recommendation for nearly every other use to which softwood is subject.

Flask lumber, although usually of lower grade than that required for patterns, must have similar valuable characteristics.



Precision is paramount where propeller efficiency is concerned. For faithful reproduction of engineering plans, Sugar Pine, easily worked, cannot be outclassed.



Grading of **SUGAR PINE** **The King of Pines**

Sugar Pine is graded under the rules of the Western Pine Association which, with its predecessor organizations, for nearly a half century has been the recognized authority on the grading of Western Pine Region woods. Its Bureau of Grades is composed of highly trained inspectors who check the work of plant graders each month, assuring the users of Sugar Pine consistent standards from the mills, and affording a basis of value for each grade. Services of the Bureau of Grades are also available for reinspection when requested by either shipper or purchaser.

For customers who prefer grade-marked lumber, the mills can furnish properly identified Sugar Pine lumber which, in addition to the Association grade and trade marks, carries the official species

mark, thus:



The product of the Sugar Pine log is segregated into a number of Select, Common and Factory grades on the basis of similar properties such as appearance, strength and available cuttings. This provides a measure of value for the range of the product and a means of specifying suitable material for a specific use. Although no one grade is



designed for a single use, the individual grade classifications are adapted to definite purposes.

All softwood grading rules, as published by the several regional lumber associations, are based on the broad general provisions of the American Lumber Standards. However, there is considerable variation in the actual utility and value of the same designated grade in different species, due primarily to difference in inherent characteristics.

In general, only the highest and lowest grades in all softwood species may be said to be comparable on a use basis. Intermediate grades often vary substantially because of the different number of grades made and because of varying utility.

Sugar Pine is classified into three Select grades, five Common grades, four Thick Factory grades and two Inch Factory grades. Many other species have three or

four Common grades; thus, for actual utility, grades of the same designation in different species may not be comparable. This is an important factor when specifications are written since different grades must be specified if comparable utility and value are to be secured.

Concise, informally written descriptions of Sugar Pine grades are presented in the following pages, together with actual photographs of typical pieces—reproduced as clearly as photographic and lithographic processes will allow—and a general non-technical explanation of each sample. The illustration of each grade serves only to indicate the *typical* appearance; no attempt is made to show every variation which might appear in any one grade.

Sugar Pine is milled *after* seasoning, assuring the buyer of standard and consistent thicknesses and widths.

Select Grades

Select grades are the top quality pieces from the log and are either clear or characterized by small blemishes such as pin knots, small pitch streaks or pockets, minor season checks or other tiny flaws which do not prevent utilization of the stock as finish material.

Sugar Pine Selects are divided into three grades. Appearance and nature of each characteristic determine category for each individual piece.

Selects are regularly available in 4/4 (1"), 5/4 (1 $\frac{1}{4}$ "), 6/4 (1 $\frac{1}{2}$ "), 7/4 (1 $\frac{3}{4}$ "), 8/4 (2"), 10/4 (2 $\frac{1}{2}$ "), 12/4 (3") and 16/4 (4") thicknesses and, on special order, in thicker stock. All thicknesses are usually shipped in random widths and lengths with a relatively small proportion of short lengths and narrow widths. They are sometimes available on special order in specified widths and lengths.

Available rough, surfaced two sides and, occasionally, surfaced four sides, Selects may also be ordered resawn, ripped to any size or worked to pattern.



Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION

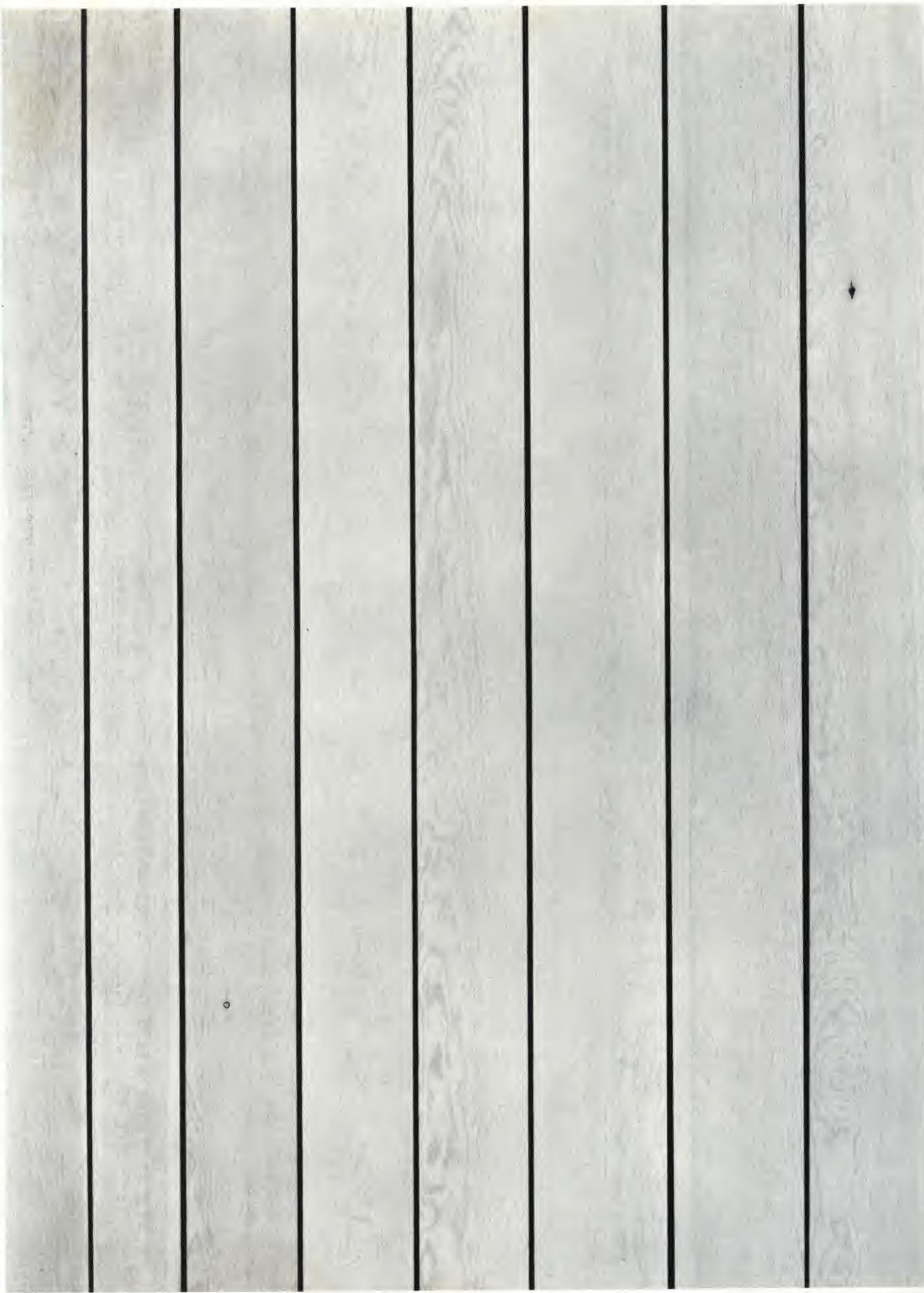
1 & 2 Clear (B & Better Select) Sugar Pine

1 & 2 Clear Sugar Pine is, as its name implies, the finest product of the tree. The largest portion of the grade is entirely clear and can be used almost without waste. In the small, low-line portion of the grade is found an occasional piece containing a small smooth knot or several pin knots. Or there may be a small dry pitch pocket, light (strictly localized) pitch, a fine season check or a small area of light stain. Although Select lumber is graded from the best side, even the backs of 1 & 2 Clear must be of extremely high quality.

1 & 2 Clear Sugar Pine is particularly suitable for interior and exterior trim, siding, paneling, counter tops and other building uses requiring the very highest quality lumber. It is recommended for top quality patterns and other industrial uses where large pieces of clear material are necessary.

Examples of 1 & 2 Clear Sugar Pine

- No. 1. 1x8"-10' Has a light bark pocket at center, no other defects.
- No. 2. 1x8"-10' Appears perfect but has two short threadlike streaks of light pitch.
- No. 3. 1x10"-10' Three feet from one end is a half inch tight knot; the piece is otherwise perfect.
- No. 4. 1x10"-10' A perfect piece.
- No. 5. 1x10"-10' Has a small amount of light stain at one end.
- No. 6. 1x12"-10' Face is entirely free from defects, the back has half inch of wane for fifteen inches.
- No. 7. 1x12"-10' Face is perfect, the back has a small streak of medium pitch.
- No. 8. 1x12"-10' Three feet from one end is a quarter inch pin knot and a small spot of stain around the knot.



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1 & 2 Clear (B & Better Select) Sugar Pine

C Select Sugar Pine

C Select Sugar Pine resembles 1 & 2 Clear in appearance, although the admissible characteristics may be somewhat larger or more numerous. Many pieces show a 1 & 2 Clear face with back characteristics too serious to be allowed in the higher grade. Dependent upon size, C Select pieces may contain a few pin knots or fewer small tight knots.

The grade also admits small season checks, small streaks of medium pitch, one or two small pitch pockets and medium stain not over more than one-third its area, provided they do not occur in serious combination.

C Select is used for high quality interior and exterior trim, siding, paneling, counter tops, mantels, cabinets, built-ins and other building finish uses. It is especially suitable for permanent patterns, woodcarvings, turned work, picture frames, etc.



Examples of C Select Sugar Pine

No. 1. 1x8"-10' **Face.** A streak of light pitch eight inches long. A pin knot at center and a light crossing stain near opposite end.
Back. Shows a half inch knot and considerable pitch for eighteen inches.

No. 2. 1x8"-10' **Face.** Three feet from one end is a small pin knot. Four feet from other end a small bruise on the edge.
Back. Two three-quarter inch blind knots, one of which has broken up slightly in milling.

No. 3. 1x10"-10' **Face.** Free of defects.
Back. A light manufacturing mar eight inches long.

No. 4. 1x10"-10' **Face.** A streak of medium stain one inch wide and three feet long, and a light crossing stain in center.
Back. Two dry pitch pockets, one-eighth inch wide and five inches long.

No. 5. 1x10"-10' **Face.** Two short streaks of medium pitch.
Back. A three-quarter inch sloughed knot on the edge.

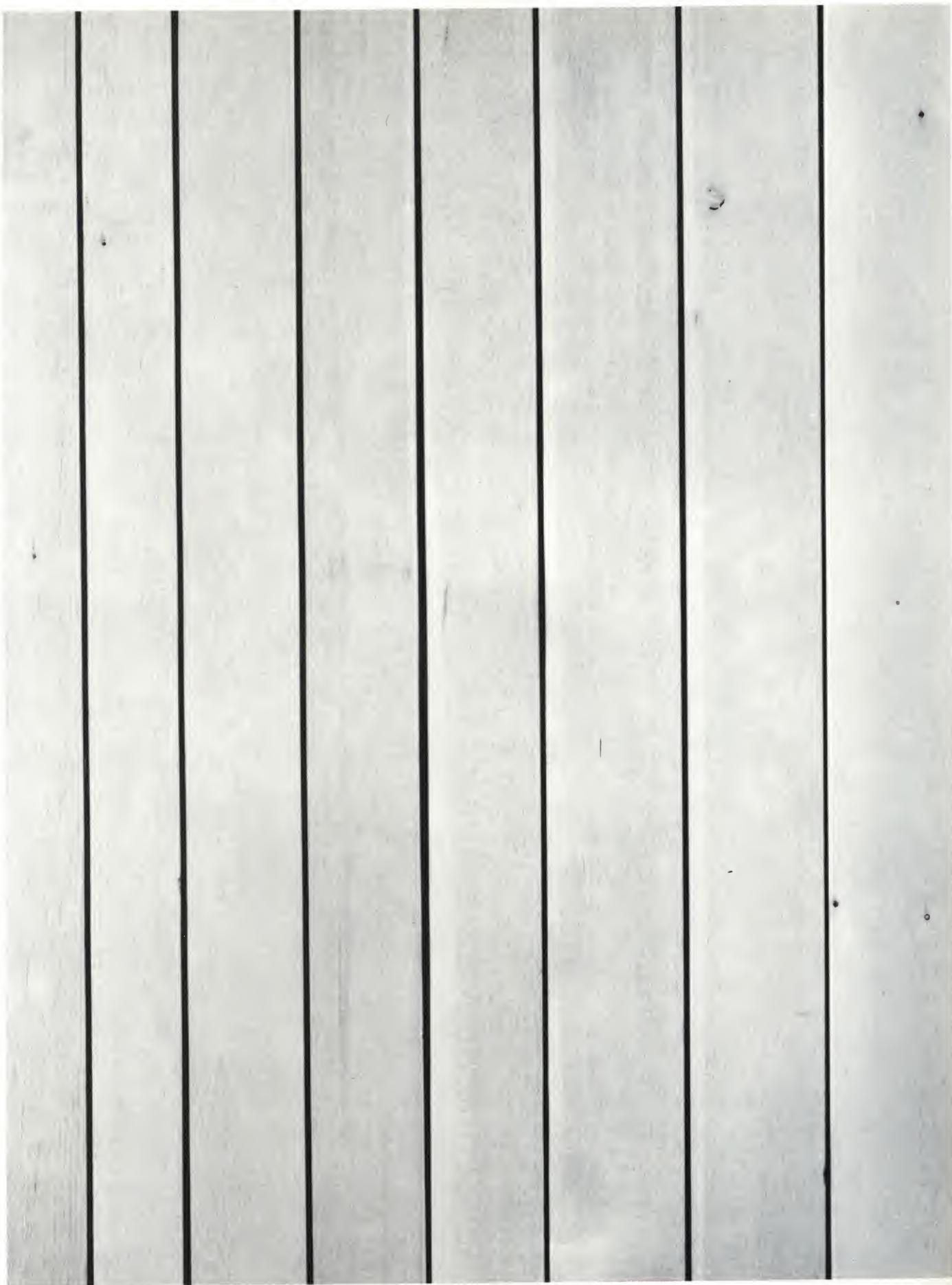
No. 6. 1x12"-10' **Face.** Very light pitch distributed over half the face and streak of medium pitch one-eighth by two inches.
Back. Slightly more pitch showing.

No. 7. 1x12"-10' **Face.** Slight indications of bark around one edge of a smooth two-inch curly spot.
Back. Has a one and one-quarter inch blind knot.

No. 8. 1x12"-10' **Face.** Four pin knots well scattered.
Back. Two pin knots and a half inch of wane for three feet.

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



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C Select — Sugar Pine

D Select Sugar Pine

D Select Sugar Pine is the lowest recognized grade of finishing lumber. Fairly smooth in appearance, it resembles the next higher grade, although admissible characteristics are generally larger or more numerous. A piece may contain several small and medium sized tight knots, some season checks, medium stain, pitch or pitch pockets, or equivalent characteristics, but not in serious combination.

A type often found in D Select is a piece showing a clear or nearly clear face with numerous or rather

serious imperfections on the back. Another admissible type may contain one defect requiring a cut to eliminate, but the remainder of the piece must be of otherwise high quality.

D Select is used for fabrication into lower quality interior and exterior trim for use in moderate or low cost homes. It can be economically used for purposes requiring lumber of fairly good quality such as window casings, cornices, window and door frames, cupboards, cabinets and mouldings.

It is used extensively for foundry pattern or industrial purposes and by small woodwork fabricators.



Examples of D Select Sugar Pine

No. 1. 1x8"-10' **Face.** Three feet from one end on the edge is a dry pitch pocket scab three-eighths by three and one-half inches, four feet from other end a small pitch pocket.
Back. Has four knots, the largest being one inch in size and has two small pitch pockets.

No. 2. 1x8"-10' **Face.** A streak of medium pitch two inches wide and two feet long at one end, other end has a streak of light pitch one inch wide and four feet long.

No. 3. 1x10"-10' **Face.** Has two five-eighths inch not firmly set black knots, no other defects.
Back. Same knots and four feet medium stain.

No. 4. 1x10"-10' **Face.** A pitch pocket one-quarter by four inches.
Back. A streak of heavy pitch two inches wide and three feet long.

No. 5. 1x10"-10' **Face.** Has a one and one-half inch tight black knot.
Back. Same knot and considerable medium stain.

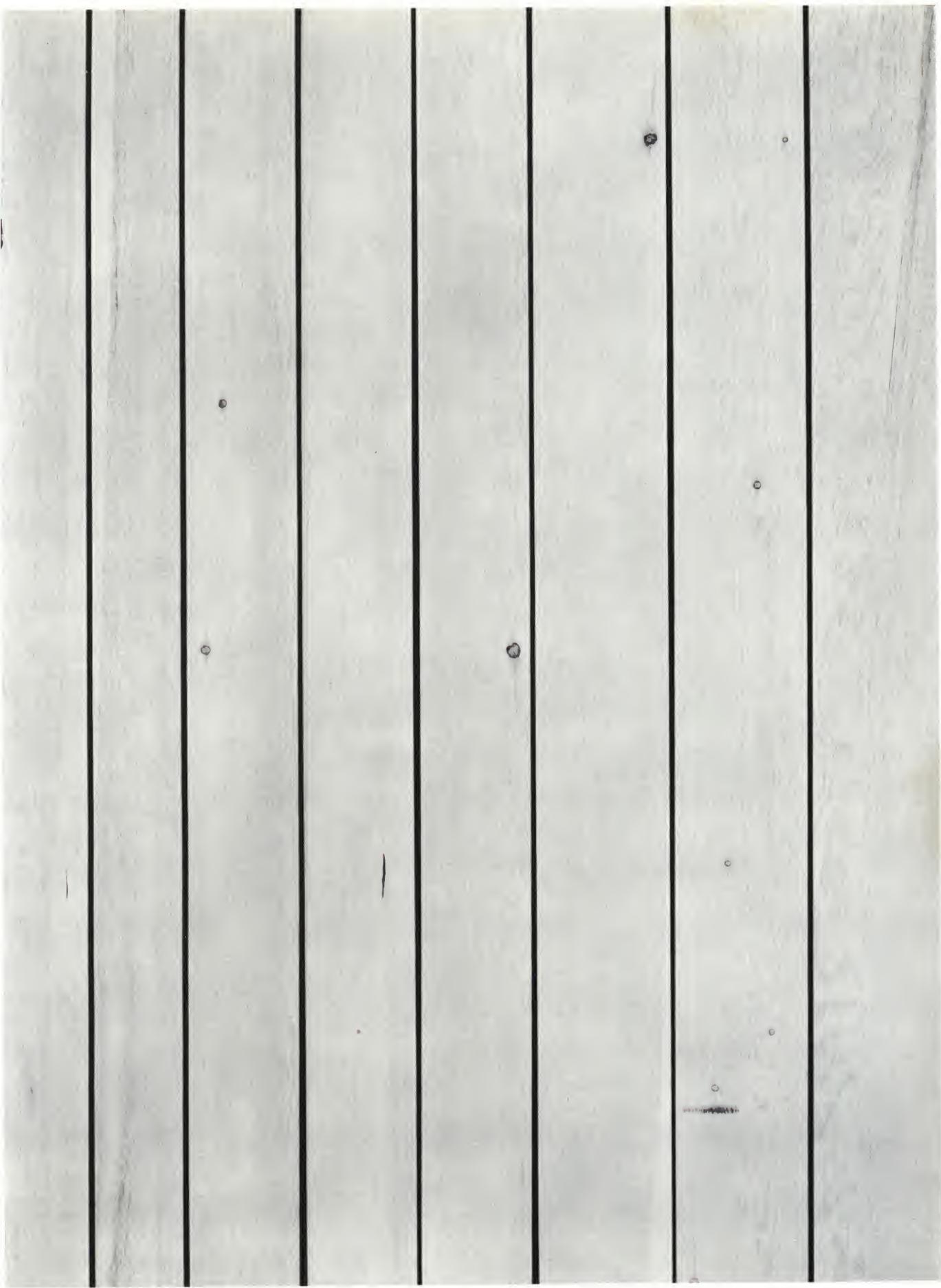
No. 6. 1x12"-10' **Face.** Two feet from one end is a one-inch tight black knot and a streak of heavy pitch running out from the knot.
Back. Same knot and a manufacturing mark a half inch deep and one inch long.

No. 7. 1x12"-10' **Face.** Six knots well scattered, the largest being five-eighths inch in diameter and also a medium machine burn at one end.
Back. Same knots slightly larger and two small spots of torn grain.

No. 8. 1x12"-10' **Face.** A streak of rather heavy pitch two inches wide and four feet long.
Back. Same amount of pitch and two small knots.

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



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D Select — Sugar Pine

Common Grades

Common grades come from that part of the log where the type of knots permit use of each piece as a whole. Knot sizes vary depending on width; wider pieces contain more numerous and/or larger knots.

In combination with knots are splits, shake, pitch pockets and wane or blemishes that may develop in manufacturing. Size and quality of the knots in combination with other characteristics determine the grade in which each piece is placed, consideration being given to width, length and thickness involved.

Common grades are generally shipped in 4/4 (1") thickness in specified widths, 4" to 12", and in random lengths 6' and longer. It is also available in 5/4 ($1\frac{1}{4}"), 6/4 ($1\frac{1}{2}"), 7/4 ($1\frac{3}{4}"), 8/4 (2"), 10/4 ($2\frac{1}{2}"), 12/4 (3") and often 16/4 (4") thicknesses.$$$$



Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION

Number 2 & Better Common Sugar Pine

No. 1 Common and No. 2 Common in Sugar Pine are normally shipped in the combined grade of No. 2 & Better. Although the greater part of a shipment is ordinarily No. 2, the inclusion of No. 1 helps give the grade a fine, smooth appearance.

Red knots are the predominating characteristic and the quality of them is the determining factor. They will vary in size from $\frac{1}{2}$ " to 2" in narrower strips with an occasional smooth red knot 3" in diameter as the maximum for a 12" board.

Other characteristics include fine season checks, some pitch or small pitch pockets, medium stain, or an occasional small, not firmly set, black knot. No serious combination is admissible. Each piece may be used full length and width.

No. 2 & Better Common is used extensively for industrial articles, for the flat or concealed portions of patterns and for foundry flasks. It is widely used in building construction for knotty paneling, Economy Siding, shelving, barn boards, tanks, cornices and other woodwork.

Examples of No. 2 & Btr Common Sugar Pine

No. 1. 1x8"-10' 3 black knots $\frac{1}{2}$ " in size.
3 red knots $\frac{1}{2}$ " in size.
1 black knot $\frac{3}{4}$ " in size.
 $1\frac{1}{2}$ " sluff— $\frac{1}{4}$ " deep on face.
Very smooth in appearance.

No. 2. 1x8"-10' 4 red knots from $1\frac{1}{4}$ " to $1\frac{3}{4}$ " with light checked centers.
5 smaller knots from $\frac{1}{2}$ " to $\frac{3}{4}$ " all firmly set.

No. 3. 1x10"-10' Has 11 red knots from $\frac{1}{4}$ " to $1\frac{1}{2}$ ". The larger knots have checked centers that are slightly chipped out. Has 1 spot of medium torn grain on one edge.

No. 4. 1x10"-10' 7 red knots from $\frac{3}{4}$ " to $1\frac{3}{4}$ " with one edge knot slightly broken out. Six black knots less than $\frac{3}{4}$ ".

No. 5. 1x10"-10' 3 red knots from $\frac{3}{4}$ " to 2".
11 smaller knots, both red and black but firmly set.
One of the larger knots slightly broken out in milling, also one of the edge knots chipped out in milling.

No. 6. 1x12"-10' 8 red knots from $\frac{3}{4}$ " to $2\frac{1}{2}$ ".
All these knots have checked centers but this board has a very good appearance.
Also 3 other smaller knots all firmly set.

No. 7. 1x12"-10' Has 14 red knots from $\frac{1}{4}$ " to $1\frac{3}{4}$ ". Some of the larger knots have checked centers and slightly torn grain around the knots.

No. 8. 1x14"-10' Has one $2\frac{1}{2}$ " red knot with center slightly broken out in milling. Has 13 smaller red knots, also $1\frac{5}{8}$ " black knot not firmly set; 1 pitch pocket $\frac{1}{8}" \times 2"$, also one scab pocket on edge $\frac{1}{8}" \times 2"$.



Number 2 and Better Common — Sugar Pine



Number 4 Common Sugar Pine

No. 4 Common includes coarse knotted, waney, badly split or perhaps extremely pitchy boards. Other types may have worm holes, excessive heart shake, red rot or skips in dressing. The grade has a utility value and is frequently purchased because of the serviceability it offers at low cost.

It is used for sheathing, subflooring, roof decking and other general utility purposes. In the industrial trade it is utilized for boxes, crating and dunnage. While waste develops in cutting out defective portions, it will produce clear serviceable cuttings for many shipping containers.

Number 5 Common Sugar Pine

No. 5 Common is the lowest recognized grade of lumber and may contain all defects found in the species. Defects are generally the same as in No. 4 but in greater degree and combination. Although pieces in No. 5 are of lowest quality, every piece is properly edged and trimmed to standard sizes.

Normal usage is in temporary or low cost construction, dunnage and grain doors. It may also be ripped to narrow widths or cut to shorter lengths to produce smaller pieces of higher quality.

Number 3 Common Sugar Pine

No. 3 Common constitutes the largest part of total Common production. Appearance is less uniform than in the higher two grades. The grade includes pieces having a wide range of characteristics, varying from a piece of otherwise No. 1 or No. 2 quality with a single defect which places it in No. 3 down to pieces with a number of coarse knots, or boards with black knots or an occasional piece of otherwise high quality with a small to medium sized knot hole.

A limited amount of heart shake, pitch, season checks or stain is admissible, provided they do not occur in serious combination and the piece is of otherwise high quality.

No. 3 Common is used in building construction for store and warehouse shelving, barn boards, concrete forms, sheathing, subflooring, roof decking, and for low cost exterior and interior woodwork and trim. In industry and foundry it is used for foundry flasks and general utility purposes.

Examples of No. 3 Common Sugar Pine

No. 1. 1x8"-10' A red knot two and one-quarter inches in diameter, and five black knots from three-quarters to one and three-quarters inches in size.

No. 2. 1x8"-10' One $3\frac{1}{2}$ " red knot and six others from $\frac{1}{2}$ " to $1\frac{1}{2}$ " in size, also three small streaks of heavy pitch.

No. 3. 1x10"-10' Has five small red knots and two red knots $3\frac{1}{2}$ " in diameter, with rather badly broken centers.

No. 4. 1x10"-10' Five 2" knots, two of these are black but all are tight and smooth.

No. 5. 1x10"-10' Nine red knots, the two largest being 3" in size, the back has roller checks for a combined length of five feet.

No. 6. 1x12"-10' Eight black knots from $\frac{1}{2}$ " to $1\frac{1}{4}$ " in size, two of them being loose, also three streaks of heavy pitch.

No. 7. 1x12"-10' Has a three-inch red knot on each edge and sixteen smaller knots; one of the edge knots has broken slightly in dressing.

No. 8. 1x12"-10' Ten red and tight black knots 1 inch in diameter, also a 1 inch knot hole.

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



Number 3 Common — Sugar Pine

Factory Grades

Factory grades are determined by the amount of clear cuttings of specified sizes obtainable in each piece. They are not based on appearance of the lumber and pieces may

have knot holes, large knots, wane, splits or other characteristics which can be eliminated in figuring the percentage of cuttings necessary to make the required grade.

5/4 AND THICKER FACTORY GRADES

Factory lumber 5/4 and thicker is sorted into four grades—Factory Select (No. 3 Clear), No. 1 Shop, No. 2 Shop, and No. 3 Shop—according to the percentages of cuttings which can be obtained from each piece. All grades are made in 5/4 (1 $\frac{1}{4}$ "), 6/4 (1 $\frac{1}{2}$ "), 7/4 (1 $\frac{3}{4}$ "), 8/4 (2") and 10/4 (2 $\frac{1}{2}$ ") thicknesses with thicker stock available from some mills. Widths run 5" and wider and lengths from 6' in multiples of 1' or 2'.

Cuttings in 5/4 and thicker Factory lumber are stiles, muntins, bottom rails, top rails and sash stock. Sizes

are: stiles—5" and 6" wide, from 6'8" to 7'6" long; muntins—5" and 6" wide, from 3'6" to 4' long; top rails—5" and 6" wide, from 2'4" to 3' long; bottom rails—9" and 10" wide, from 2'4" to 3' long; sash cuts—2 $\frac{1}{2}$ " and wider in width by 2'4" and longer in length.

Two grades of cuttings are recognized: No. 1 cuttings are free from defects on both sides except for one barely perceptible bark pocket or pitch blemish; No. 2 cuttings permit minor imperfections which do not detract from the use intended.

5/4 and Thicker Factory Select (Number 3 Clear) Sugar Pine

Factory Select is the highest grade of Factory lumber and is intended for use by sash and door factories and other architectural woodwork fabricators and for foundry patterns.

Not over two muntins are admissible in any one piece and no piece is included in the grade if it contains muntins only. The grade is determined from the poor

side of the piece. Factory Select contains 70 per cent or more of No. 1 cuttings, except one No. 2 door stile is permitted in pieces containing one No. 1 stile or two or more No. 1 door cuttings.

Factory Select is highly recommended for its cutting qualities and is well suited for manufacture into a wide variety of woodwork articles as well as for manufacture into doors. It is worked into mouldings and trim with practically no waste. It furnishes a large percentage of door stiles.

5"x7'6"=3Ft.-STILE		5"x7'6"=3Ft.-STILE		
5"x7'6"=3Ft.-STILE		5"x48"=1 $\frac{3}{4}$ Ft. MUNTIN		5"x48"=1 $\frac{3}{4}$ Ft. MUNTIN
10"x30"=2Ft. BOTTOM RAIL	10"x36"=2 $\frac{1}{2}$ Ft. BOTTOM RAIL	9"x34"=2Ft. BOTTOM RAIL	10"x34"=2 $\frac{1}{2}$ Ft. BOTTOM RAIL	10"x28"=2Ft. BOTTOM RAIL

Factory Select (No. 3 Clear)—This piece is 21 inches wide by 16 feet long. It scales 28 feet surface measure.
It contains 83.2% of cuttings.

Examples of Thick Factory Select (No. 3 Clear) Sugar Pine

No. 1. 6/4x10"-10' 2 Stiles 5"x7'6".

No. 2. 6/4x10"-10' 1 Stile 6"x7".
1 Bottom Rail 10"x36".

No. 3. 6/4x14"-10' 1 Stile 5"x6"-10'.
2 Bottom Rails 9"x36".
1 Bottom Rail 10"x32" at one end.

No. 4. 6/4x18"-10' 1 Stile 6"x7'6".
2 Stiles 5"x7".
1 Bottom Rail 10"x28".

No. 5. 6/4x26"-10' 1 Edge.
1 Bottom Rail 9"x28".
1 Bottom Rail 9"x36".
2 Muntins 5"x4".
Other Edge.
2 Stiles 1 $\frac{1}{2}$ "x7'6".
1 $\frac{1}{2}$ "x7".
1 Bottom Rail 10"x28".

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION

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5/4 and Thicker Factory Select (Number 3 Clear) — Sugar Pine

5/4 and Thicker Number 1 Shop Sugar Pine

Number 1 Shop is the second highest cutting grade intended for factory use. Requirements are that each piece contain from 50 to 70 per cent of door cuttings, all of No. 1 quality except for one No. 2 stile.

No. 1 Shop lumber in Sugar Pine is a widely recognized material at millwork plants for re-manufacturing purposes. Well scattered knots increase the number of long clear cuts, so desirable in the factory. It is excellent for built-up pattern use.

$10'' \times 28'' = 2\text{ ft.}$	$6'' \times 7' 0'' = 3\frac{1}{2}\text{ ft. - STILE}$	$10'' \times 36'' = 2\frac{1}{2}\text{ ft.}$
$6'' \times 7' 6'' = 3\frac{3}{4}\text{ ft. - STILE}$	$6'' \times 48'' = 2\text{ ft. MUNTIN}$	
$6'' \times 7' 6'' = 3\frac{3}{4}\text{ ft. - STILE}$	$6'' \times 48'' = 2\text{ ft. MUNTIN}$	

No. 1 Shop—This piece is 25 inches wide by 16 feet long, and scales 33 feet surface measure. The total footage of acceptable door cuttings is $19\frac{1}{2}$ feet, or 59%.

Examples of No. 1 Shop Sugar Pine

No. 1. 6/4x11"-10' 1 Stile 5"x7'6".
2 Muntins 5"x3'6".

No. 2. 6/4x14"-10' 1 No. 1 Stile 6"x7".
1 No. 1 Stile 6"x7'6".

No. 3. 6/4x16"-10' 1 Muntin 6"x4" opposite edge from stile.
1 Stile 6"x7'6" one edge.
1 Bottom Rail 10"x36" opposite edge from stile.

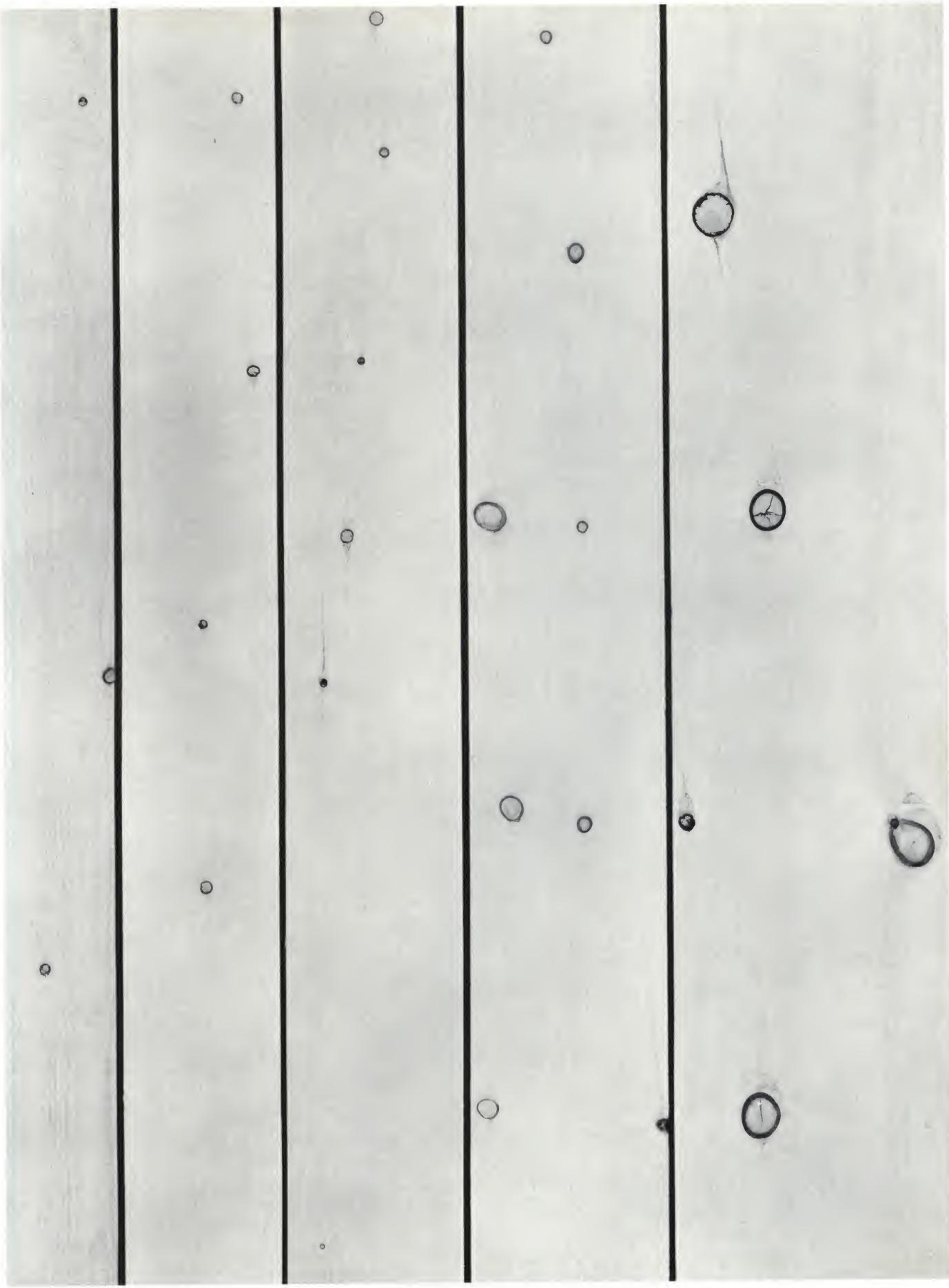
No. 4. 6/4x18"-10' 1 Stile 6"x7" one edge.
1 Bottom Rail 10"x36" at one end.
1 Bottom Rail 9"x36" opposite edge.

No. 5. 6/4x26"-10' 1 Bottom Rail 10"x36")
1 Bottom Rail 10"x36")One edge.
1 Bottom Rail 10"x36")
1 Bottom Rail 9"x36")Center.
1 Bottom Rail 10"x36")
1 Muntin 6"x3'6" other edge.



Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



5/4 and Thicker Number 1 Shop — Sugar Pine

5/4 and Thicker Number 2 Shop Sugar Pine

Each piece of No. 2 Shop produces one of the following percentages of door cuttings: 25 per cent of No. 1 cuttings; 33½ per cent of mixed No. 1 and No. 2 cuttings; 40 per cent of No. 2 cuttings in the same sizes as specified for No. 1 Shop and including top rails which must be of No. 1 quality but are counted as No. 2 cuttings.

No. 2 Shop is used by the industrial trade, for patterns, and by woodworking plants producing doors, sash, frames, trim, mouldings and cabinetwork.

5"x 48" = 1 3/4 Ft. MUNTIN	5"x 6' 8" = 3 Ft. STILE	5"x 44" = 1 1/2 Ft. MUNTIN, 10"x 28" 2 FT. 10"x 28" 2 FT. BOTTOM RAIL
5"x 48" = 1 3/4 Ft. MUNTIN		BOTTOM RAIL

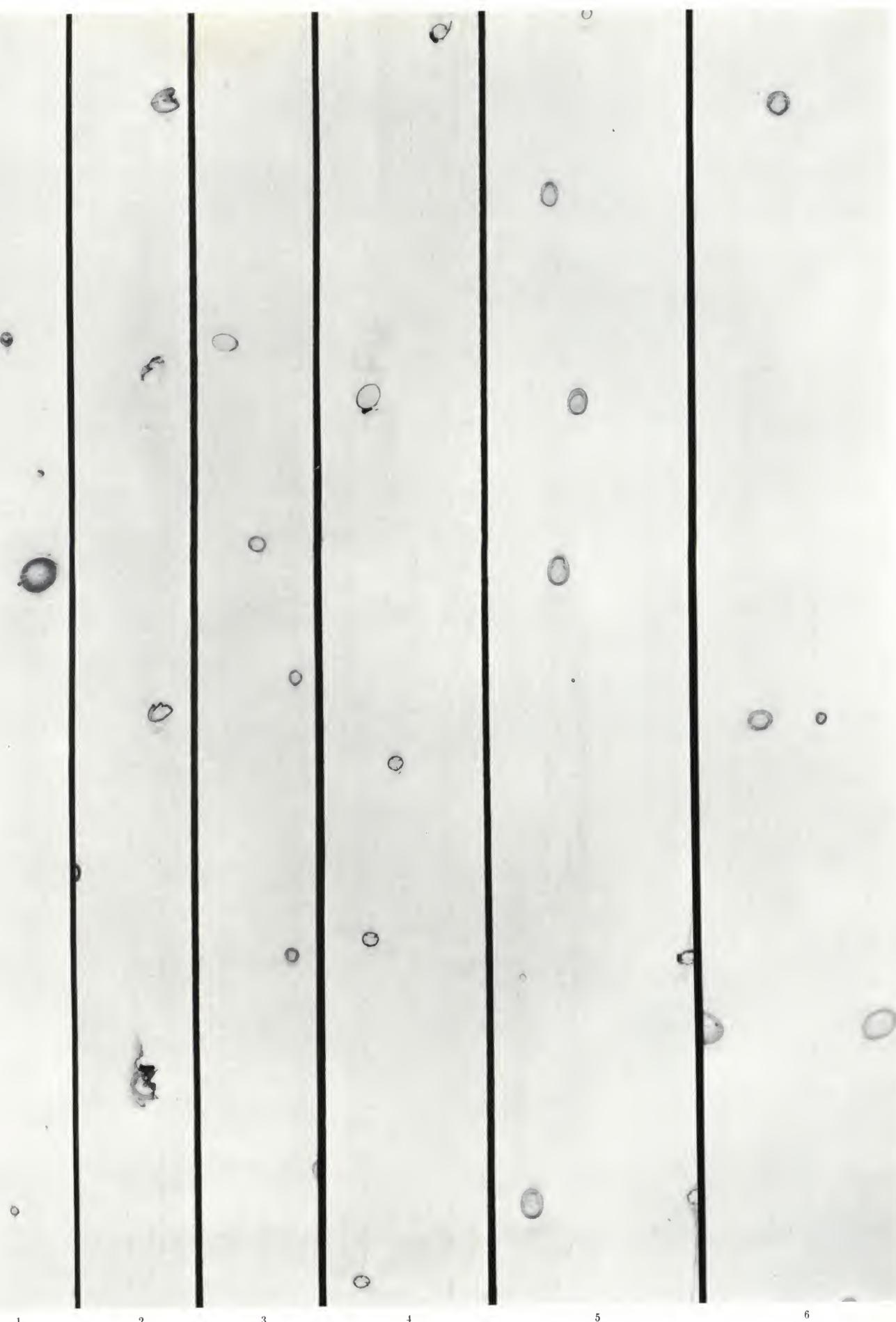
No. 2 Shop—This piece is 20½ inches wide by 16 feet long. It scales 27 feet surface measure and the total footage of acceptable door cuttings is 12 feet, or 44.4%.

Examples of No. 2 Shop Sugar Pine

- No. 1. 6/4x10"-10' 1 No. 2 Stile 5"x6'8".
1 No. 2 Bottom Rail 9"x28".
- No. 2. 6/4x10"-10' 1 No. 1 Stile 5"x7'.
2 No. 1 Top Rails 5"x28".
- No. 3. 6/4x10"-10' 1 No. 2 Bottom Rail 10"x28".
1 No. 1 Muntin 6"x48".
- No. 4. 6/4x14"-10' 1 No. 1 Stile 5"x7'6"
1 No. 1 Bottom Rail 9"x36".
1 No. 2 Bottom Rail 9"x32".
1 No. 2 Bottom Rail 9"x28".
- No. 5. 6/4x18"-10' 1 No. 2 Stile 6"x7'2".
1 No. 1 Bottom Rail 10"x36".
1 No. 2 Bottom Rail 9"x28".
- No. 6. 6/4x18"-10' 1 No. 1 Stile 5"x6'8".
1 No. 1 Muntin 6"x48".
1 No. 2 Bottom Rail 9"x36".

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION

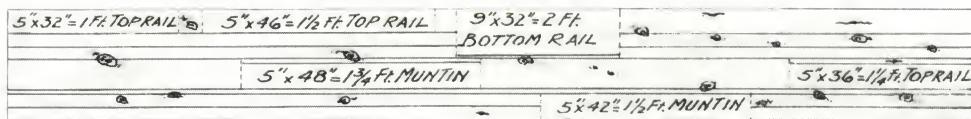


5/4 and Thicker Number 2 Shop — Sugar Pine

5/4 and Thicker Number 3 Shop Sugar Pine

Number 3 Shop includes all pieces 5/4 and thicker below the grade of No. 2 Shop with the specific provision that they must be of cutting type suitable for sash, door and other cuttings. Thus all pieces where the greater part of the area is of the Common grade type, although having a small percentage of valuable cuttings on the edge or edges, are not considered a cutting type and not included in the grade.

No. 3 Shop is valued chiefly for sash cuttings but produces a good many other valuable cuttings for frames, sills, mouldings, trim and specialty cuttings.



No. 3 Shop—This piece is 22 inches wide by 16 feet long, and scales 30 feet surface measure. It contains 29.1% of No. 1 and 2 door cuttings and 33 1/2% of sash cuttings.

Examples of No. 3 Shop Sugar Pine

- No. 1. 6/4x10"-10' 1 No. 2 Bottom Rail 9"x32".
5 1/2 lineal feet 4" Sash Stock.
5 lineal feet 3" Sash Stock.
- No. 2. 6/4x9"-10' 1 No. 2 Bottom Rail 9"x32".
13 1/2 lineal feet of 3" & wdr Sash Stock.
- No. 3. 6/4x10"-10' 3 No. 1 Top Rails 5"x28".
7 lineal feet 2 1/2" Sash Stock.
- No. 4. 6/4x16"-10' 1 No. 2 Bottom Rail 10"x28".
2 No. 1 Top Rails 5"x36".
10 lineal feet 4" Sash Stock.
- No. 5. 6/4x18"-10' 1 No. 2 Stile 5"x6'8".
1 No. 1 Top Rail 5"x36".
9 lineal feet 2 1/2" & wdr Sash Stock.
- No. 6. 6/4x18"-10' 1 Cut Clear 1 side 8"x7'6" (suitable for Jamb).
1 No. 1 Top Rail 5"x32".
6 lineal feet 2 1/2" Sash Stock.

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Grades and Uses of SUGAR PINE

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5/4 and Thicker Number 3 Shop — Sugar Pine

4/4 FACTORY GRADES

4/4 Factory grades are determined by the amount of clear cuttings of specified sizes obtainable from each piece. Cutting sizes, however, that are used as a basis for determining 4/4 Factory grades differ from the cutting sizes specified for 5/4 & Thicker Factory lumber. For example, 4/4 and 5/4 & Thicker Factory Select are not identical grades as each is based on a different group of cutting sizes. A brief reading of the cutting sizes required for 4/4 Factory Select and 5/4 & Thicker Factory Select will quickly make this apparent.

Like other Factory grades, 4/4 Factory grades are not based on the appearance of the lumber. Pieces may have knot holes, large knots, wane, splits or other imperfections which can be eliminated in figuring the percentage necessary to make the required grade.

There are three grades of 4/4 Factory lumber—4/4 Factory Select, 4/4 No. 1 Shop and 4/4 No. 2 Shop—depending upon the percentages of cuttings obtainable.

4/4 Factory Select (Number 3 Clear) Sugar Pine

4/4 Factory Select is the highest of three grades of 4/4 Factory lumber. It must contain at least 70 per cent of cuttings of the following sizes: (1) 9½" wide or wider by 18" long or longer and (2) 5" wide or wider by 3' long or longer. Any sizes obtainable over these minimums are figured in securing the necessary percentages. Pieces 9½" wide or wider and less than 3' long are free from defects on both sides. Pieces 5" wide or wider and more than 3' long are graded as C Select or better. 4/4 Factory Select is shipped in random widths and lengths 5" and wider and 6' and longer.

Although 70 per cent of cuttings is the minimum requirement of the grade, the bulk of the stock usually contains a higher proportion of high grade cuttings. The principal feature is the large yield of long clear or nearly clear cuttings.

4/4 Factory Select is especially suited for the requirements of cabinet shops, frame and woodwork factories, wood specialty plants and industrial arts schools because of the proportion of long cuttings obtainable with a minimum of waste at reasonable cost.

$6'' \times 5' = 2\frac{1}{2} \text{ Ft.}$	$6'' \times 8\frac{1}{2}' = 4\frac{1}{4} \text{ Ft.}$
$10'' \times 4' = 3\frac{1}{3} \text{ Ft.}$	$10'' \times 3' = 2\frac{1}{2} \text{ Ft.}$

4/4 Factory Select (No. 3 Clear)—This piece is 16 inches in width and 14 feet in length, and scales 18½ board feet. It contains 16.6 feet of cuttings, or 88.8%.

Examples of 4/4 Factory Select (No. 3 Clear) Sugar Pine

No. 1. 4/4x10"-10' 1 cut 5"x36".
1 cut 10"x60".

No. 2. 4/4x12"-10' 1 cut 12"x20".
1 cut 10"x50".
1 cut 12"x22".
1 cut 12"x19".

No. 3. 4/4x12"-10' 1 cut 12"x31".
1 cut 12"x29".
1 cut 6"x40".
1 cut 6"x38".

No. 4. 4/4x12"-10' 1 cut 12"x19".
1 cut 10"x35".
1 cut 12"x50".

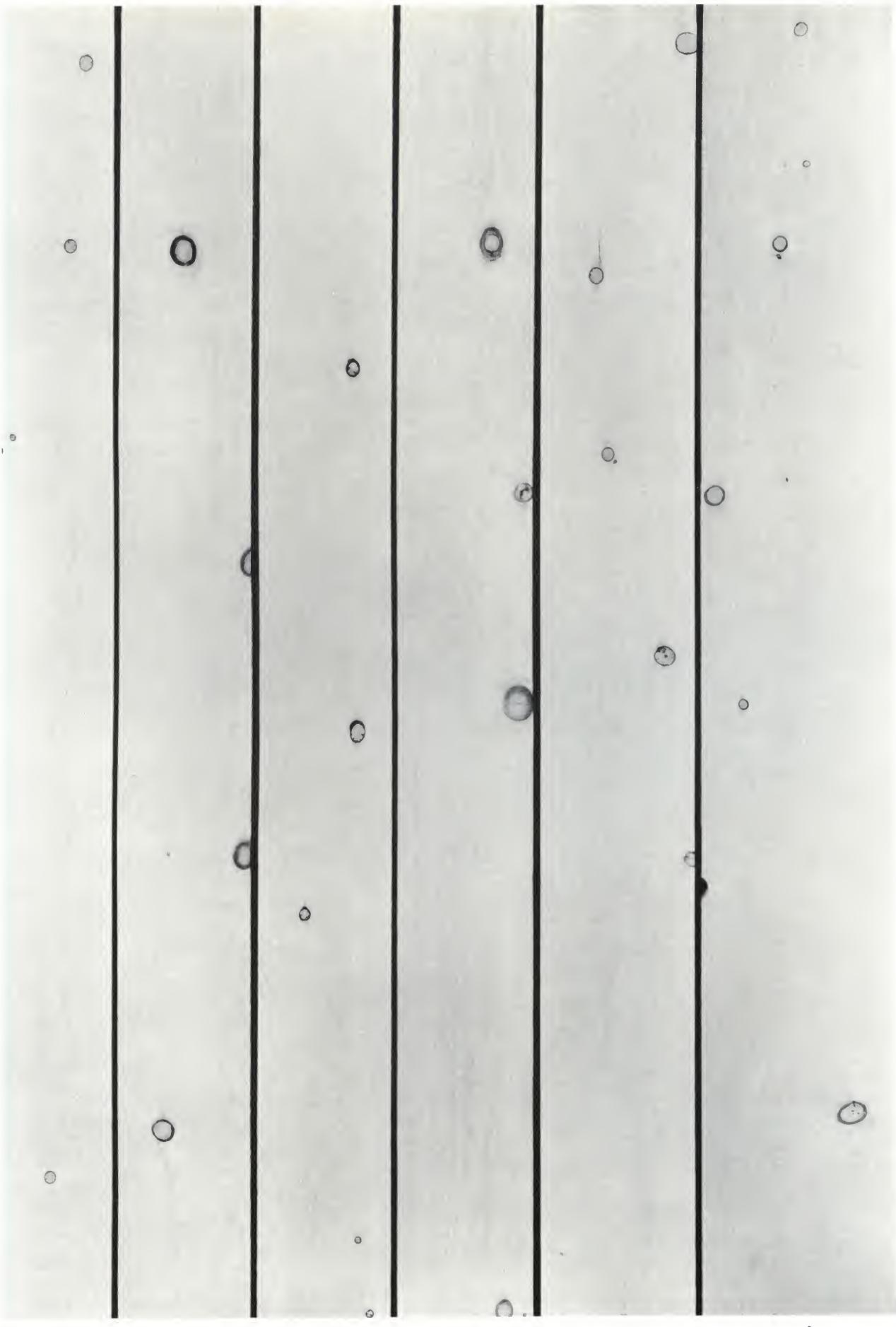
No. 5. 4/4x14"-10' 1 cut 12"x18" One end.
1 cut 7"x38"} One edge.
1 cut 7"x42"} Opposite edge.
1 cut 7"x79"

No. 6. 4/4x18"-10' 1 cut 6"x42"} One edge.
1 cut 5"x57"} Opposite edge.
1 cut 12"x20"}
1 cut 12"x61"} Opposite edge.
1 cut 8"x36"

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Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



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4/4 Factory Select (Number 3 Clear) — Sugar Pine

4/4 Number 1 Shop Sugar Pine

Second of three grades of 4/4 Factory lumber, 4/4 No. 1 Shop contains 50 to 70 per cent of the following sized cuttings suitable for general woodwork: (1) 9½" wide or wider by 18" long or longer and (2) 4" wide or wider by 3' long or longer. Any sizes obtainable over these minimums are figured in securing the necessary percentages. Pieces 9½" wide or wider and less than 3' long are free from defects on both sides. Pieces 4" wide or wider and more than 3' long are graded as C Select or better. 4/4 No. 1 Shop is shipped in random widths and lengths 4" wide and wider and 6' long and longer.

It is used by cabinet shops, frame and woodwork factories, wood specialty plants and industrial arts schools where pieces of shorter lengths and narrower widths of clear material can be used to advantage.

10" x 34" = 2½ Ft.	8" x 46" = 2½ Ft.	6" x 4' = 2 Ft.
5" x 10' = 4 Ft.		

4/4 No. 1 Shop—The sample above is 15 inches wide by 14 feet long. It scales 17½ board feet, and contains 10.8 feet of cuttings, or 61.9%.



4/4 Number 2 Shop Sugar Pine

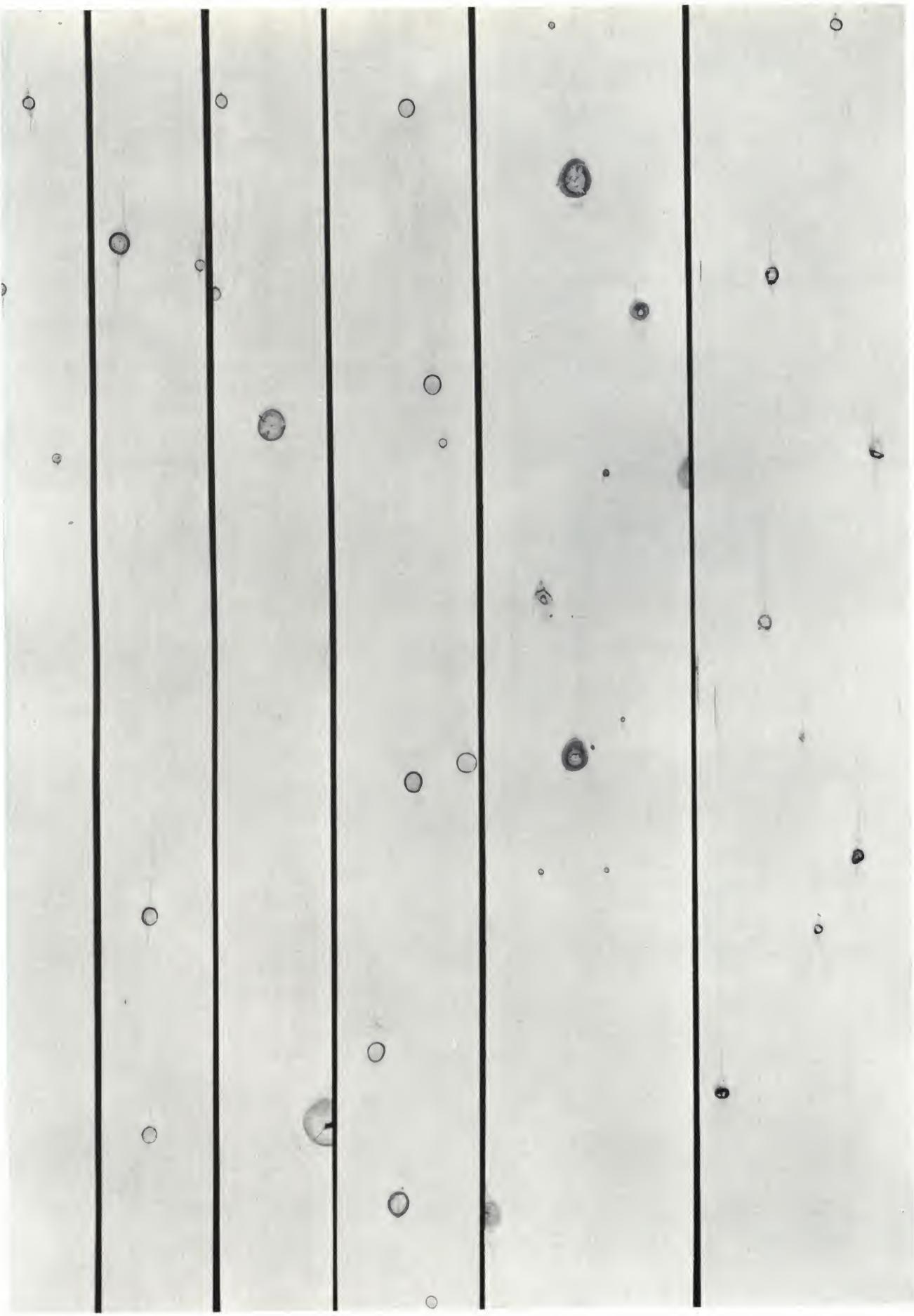
Lowest of the three grades of 4/4 Factory lumber, 4/4 No. 2 Shop consists of Shop type pieces which do not have the required per cent of cuttings necessary for 4/4 No. 1 Shop. The grade contains not less than 33½ per cent of cuttings of the size and quality permissible in 4/4 No. 1 Shop. Uses for 4/4 No. 2 Shop are the same as for 4/4 No. 1 Shop.

Examples of 4/4 No. 1 Shop Sugar Pine

- No. 1. 4/4x8"-10' 1 cut 8"x78" Clear both sides.
- No. 2. 4/4x10"-10' 1 cut 10"x57" Clear both sides.
1 cut 6"x36" Clear both sides.
- No. 3. 4/4x10"-10' 1 cut 8"x36" Clear both sides.
1 cut 8"x57" Two very small bark pockets, small patch torn grain.
- No. 4. 4/4x12"-10' 1 cut 13"x22" Clear both sides.
1 cut 13"x24".
1 cut 13"x18".
- No. 5. 4/4x19"-10' 1 cut 6"x72" 1 very small bark pocket in center.
1 cut 11"x41" Clear face, light brown stain over half the back.
1 cut 11"x32" Clear both sides.
- No. 6. 4/4x20"-10' 1 cut 8"x42" Clear both sides.
1 cut 9"x53" Clear both sides.
1 cut 10"x20" Clear both sides.
1 cut 10"x28" Clear both sides.
1 cut 10"x36" Trace of light pitch streak.
1 cut 10"x24" Clear both sides.

Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION



4/4 Number 1 Shop — Sugar Pine

Moulding Lumber

Moulding Lumber consists of stock suitable for ripping into strips 1" and wider and 6' and longer. Each piece contains not less than 50 per cent of rips of the grade permissible in Standard Mouldings. Up to 15 per cent of stock 6' to 9' may be included provided each piece contains 50 per cent or more of full length moulding rips.

Wane, skips in dressing or other defects that will surface off in making mouldings of standard sizes are admissible in computing the percentage of obtainable rips.

Moulding lumber is manufactured in all Association standard thicknesses and is shipped random length and width. No more than 15 per cent of lengths from 6' to 9' is permitted in a shipment.

Moulding lumber, as the name implies, is used for the manufacture of all types of mouldings.

Standard Mouldings—Sugar Pine

Sugar Pine mouldings permit such defects as are usable for both interior and exterior trim. These may

be light season checks, small pitch pockets, light torn grain, pin-size and small knots, medium stain or a small amount of pitch. A serious combination of these is not admissible in any one piece.

On the basis of a 1 x 2" — 12', mouldings permit the following characteristics or their equivalent: (1) A small spot of torn grain and 1' of medium pitch, or (2) One small and one very small pitch pocket, or (3) Two pin knots or a small knot together with one other minor defect, or (4) One short, tight season check and a light snipe at one end, or (5) Medium stain for one-half the area in an otherwise perfect piece except that only light stain is admissible in inside mouldings.

Defects that will not show when the piece is laid are not given the same consideration as defects on the face side. Pieces requiring one cut of not to exceed 4" of waste to eliminate a defect too serious to go in the grade are allowed in otherwise high-line pieces 12' long and longer, but not more than 15 per cent of the cutting type is admissible in any one item.

Standard Mouldings are shipped in lengths from 3' to 20' in multiples of 1', not over 15 per cent under 8' long in any one item, and bundled separately.



Grades and Uses of SUGAR PINE

WESTERN PINE ASSOCIATION

RECOMMENDED GRADES OF SUGAR PINE

Construction Uses

(Residences and Garages, Multiple Dwellings and Large Buildings)

	<i>Top Grade</i>	<i>Medium Grade</i>	<i>Economy Grade</i>
Base - - - - -	1&2 Clear	C Sel-D Sel	D Sel
Blinds, Outside - - - - -	No. 1 Blinds	No. 1 Blinds	No. 2 Blinds
Built-in Fixtures - - - - -	1&2 Clear-C Sel	D Sel-3 Clear	*2&Btr Com-Inch Shop- 1&2 Shop
Casing - - - - -	1&2 Clear-C Sel	D Sel	D Sel
Ceiling - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com-3 Com
Concrete Forms - - - - -	2&Btr Com	3 Com-4 Com	4 Com
Cornices - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Cupboards - - - - -	1&2 Clear-C Sel	D Sel-3 Clear	D Sel
Doors - - - - -	No. 1 Doors	No. 2 Doors	No. 2 Doors
Door Frames - - - - -	1&2 Clear	C Sel	D Sel
Drain Boards - - - - -	1&2 Clear	C Sel	D Sel
Jambs - - - - -	C Sel-D Sel	D Sel	*2&Btr Com
Mouldings - - - - -	Standard Grade	Standard Grade	Standard Grade
Paneling, Enameled - - - - -	1&2 Clear-C Sel	D Sel	D Sel
Paneling, Knotty - - - - -	Special	Special	2&Btr Com
Partition - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Porch Columns - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Porch Work - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Railings - - - - -	Standard Mouldings	Standard Mouldings	Standard Mouldings
Screens - - - - -	Standard	Standard	Standard
Sheathing - - - - -	2&Btr Com	3 Com	4 Com
Shelving - - - - -	C Sel	D Sel	*2&Btr Com-3 Com
Siding, Bevel - - - - -	B&Btr Siding	C Siding	D Siding
Siding, Bungalow - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Siding, Colonial - - - - -	1&2 Clear-C Sel	C Sel	D Sel
Siding, Drop - - - - -	C Sel	D Sel	*2 Com-3 Com
Siding, Log Cabin (Thick) - -	2&Btr Com	2&Btr Com	2&Btr Com
Stair Treads, Risers - - - - -	1&2 Clear	C Sel	D Sel
Stair Stringers - - - - -	1&2 Clear-C Sel	D Sel	Thick No. 2 Com
Shutters and Louvres - - - - -	No. 1 Blinds	No. 1 Blinds	No.1 Blinds
Sub-Flooring - - - - -	2&Btr Com	3 Com	4 Com
Trim, Exterior - - - - -	1&2 Clear-C Sel	D Sel	*2&Btr Com
Trim, Interior - - - - -	1&2 Clear	C Sel	D Sel
Wainscoting - - - - -	1&2 Clear	C Sel	D Sel
Window Frames (special) - -	1&2 Clear-C Sel	D Sel-2&Btr Com	2&Btr Com
Window Frames (stock) - -	Clear Frame	Clear-No. 1 Frame	No. 2 Frame
Window Sash - - - - -	Standard Sash	Standard Sash	Standard Sash

*To prevent bleeding of knot resins through paint, use WP-578 Knot Sealer. Description on page 16 under Economy Siding.

RECOMMENDED GRADES OF SUGAR PINE

Factory Uses

(Stock Sash, Door and Woodwork Factories)

Blinds - - - - -	C&D Sel-Inch Shop	Pickets, Fence - - - - -	C Sel-D Sel
Book Cases - - - - -	1&2 Clear-3 Clear-C Sel-D Sel	Porch Columns, Turned - -	1 Shop-3 Clear>Selects
Casings - - - - -	3 Clear-Inch Shop-2&3 Shop	Sash - - - - -	2 Shop-3 Shop
Doors:		Screen Doors - - - - -	Selects-Inch Shop-2&3 Shop
Tiles - - - - -	3 Clear-1 Shop-2 Shop	Screen Sash - - - - -	Selects-Inch Shop-2&3 Shop
Rails, Lock - - - - -	1 Shop-2 Shop-3 Shop	Shutters - - - - -	Selects-Shop
Rails, Top - - - - -	2 Shop-3 Shop	Sills, Door - - - - -	Thick Select
Muntins - - - - -	3 Clear-1 Shop-2 Shop-3 Shop	Sills, Window - - - - -	Thick Select
Door Frames - - - - -	3 Clear-Shop	Storm Doors - - - - -	Selects-Shop-*2&Btr Com
Ironing Boards - - - - -	3 Clear-C Sel-D Sel-Shop	Storm Sash - - - - -	3 Shop-Inch Shop
Jambs, Door - - - - -	1 Shop-2 Shop	Table Legs - - - - -	C Select
Mouldings - - - - -	Selects-Moulding Lbr.	Table Tops - - - - -	C Sel-D Sel
Panels, Door - - - - -	3 Clear-1 Shop&Btr	Window Frames - - - - -	Selects-Shop-2&Btr Com
Pergolas - - - - -	C Sel-D Sel-*2&Btr Com		

(Special Woodwork Factories)

Balustrades - - - - -	1&2 Clear-3 Clear-C Sel	Frames, Special Window - -	1&2 Clear-C Sel-1&2 Shop-D Sel
Bins, Flour and Sugar - -	3 Clear-C Sel-D Sel-Inch Shop	Ironing Boards - - - - -	3 Clear-C Sel-D Sel
Book Cases - - - - -	1&2 Clear-C&D Sel-Inch Shop-1&2 Shop	Jambs, Door - - - - -	D Sel-1&2 Shop-*2&Btr Com
Boxes, Flower - - - - -	C&D Sel-Inch Shop-*2&Btr Com	Linen Cases - - - - -	C Sel-D Sel
Cabinets - - - - -	C Sel-D Sel-Inch Shop-3 Clear	Mantels - - - - -	C Sel-D Sel-Inch Shop
Columns, Porch - - - - -	1&2 Clear-C Sel-D Sel-3 Clear	Mouldings - - - - -	C Sel-D Sel-Moulding Lbr.
Cupboards - - - - -	3 Clear-C Sel-D Sel-Inch Shop	Paneling, Enameled - - -	1&2 Clear-C Sel-D Sel
Counter Tops - - - - -	1&2 Clear-C Sel-D Sel	Paneling, Knotty - - - -	2&Btr Com
Doors, Exterior - - - - -	C&D Sel-1&2 Shop	Pergolas - - - - -	C Sel-D Sel-*2&Btr Com
Doors, Garage - - - - -	C&D Sel-1&2 Shop-*2&Btr Com	Pews - - - - -	1&2 Clear-C Sel
Doors, Interior - - - - -	C&D Sel-1&2 Shop	Pickets, Fencee - - - - -	C Sel-D Sel
Doors, Knotty - - - - -	*2&Btr Com	Sash, Greenhouse - - - -	2 Shop-3 Shop
Doors, Screen - - - - -	C Sel-D Sel	Sash, Screen - - - - -	C Sel-D Sel
Dressers and Wardrobes - -	C Sel-D Sel	Sash, Special Window - - -	C Sel-D Sel-3 Shop
Drawer Bottoms - - - - -	C Sel-D Sel	Swings, Porch - - - - -	C Sel-D Sel-*2&Btr Com
Fixtures, Bank - - - - -	1 Shop&Btr-Inch Shop	Stair Work - - - - -	1&2 Clear-C Sel-D Sel
Fixtures, Built-in - - - - -	1&2 Clear-C Sel-D Sel-Inch Shop-1&2 Shop	Store Fronts - - - - -	1&2 Clear-C Sel-D Sel
Fixtures, Store - - - - -	1&2 Clear-C Sel-D Sel-Inch Shop-1&2 Shop	Store Fronts, Covered - -	D Sel-2&Btr Com
Frames, Special Door - - -	1&2 Clear-C Sel-D Sel-1&2 Shop	Table Legs - - - - -	C Select

*To prevent bleeding of knot resins through paint, use WP-578 Knot Sealer. Description on page 16 under Economy Siding.

RECOMMENDED GRADES OF SUGAR PINE

Industrial Uses

Agricultural Machinery	- - - - -	1&2 Clear-C Sel
Awning Rollers	- - - - -	Selects
Backing, Furniture and Mirror	- - - - -	3 Com-4 Com
Billboard Framing	- - - - -	*2&Btr Com-*3 Com
Billboard Mouldings	- - - - -	*2&Btr Com
Boxes, Shipping	- - - - -	3 Com-4 Com
Boxes, Casket Shipping	- - - - -	3 Com
Caskets, Cloth Covered	- - - - -	2&Btr Com-3 Com
Card Tables	- - - - -	3 Clear-C Sel-D Sel
Chair Seats	- - - - -	D Sel-Inch Shop-1&2 Shop
Crates, Glass Plant	- - - - -	4 Com
Crates, Shipping	- - - - -	3 Com-4 Com-5 Com
Cutting Boards	- - - - -	1&2 Clear-C Sel-3 Clear
Drawing Boards	- - - - -	1&2 Clear-C Sel-3 Clear
Drawer Bottoms	- - - - -	C Sel-D Sel
Fence Pickets	- - - - -	C Sel-D Sel
Flasks, Foundry	- - - - -	2&Btr Com-3 Com
Flumes	- - - - -	2&Btr Com
Furniture, Garden	- - - - -	3 Clear-C Sel-D Sel
Furniture, Softwood	- - - - -	3 Clear-C Sel-D Sel
Grandstand Seats	- - - - -	*2&Btr Com
Ironing Boards	- - - - -	3 Clear-C Sel-D Sel
Map Rollers and Slats	- - - - -	Selects
Novelties	- - - - -	3 Clear-C&D Sel-Inch Shop- 1&2 Shop
Organ Pipes	- - - - -	1&2 Clear-C Sel-Inch Shop
Pastry Boards	- - - - -	3 Clear-Inch Shop

Patterns, Foundry	- - - - -	1&2 Clear-3 Clear-C Sel-D Sel- Shop-2&Btr Com
Piano Keys	- - - - -	Special Grade
Picture Frames	- - - - -	C Sel-D Sel-*2&Btr Com- *3 Com
Picture Backing	- - - - -	3 Com-4 Com
Refrigerator Backing	- - - - -	2&Btr Com-3 Com
Rug Poles	- - - - -	Selects
School Industrial Arts	- - - - -	Lumber
		- - - - - 3 Clear-C&D Sel-*2&Btr Com- *3 Com-Inch Shop
Signs, Small	- - - - -	D Sel-*2&Btr Com
Scroll Work	- - - - -	Selects
Shade Rollers	- - - - -	Selects
Sounding Boards	- - - - -	Selects-Shop
Stadium Seats	- - - - -	2&Btr Com
Store Fixtures	- - - - -	Selects-Shop-*2&Btr Com
Store Fronts	- - - - -	C Sel-D Sel
Store Fronts (covered)	- - - - -	D Sel-2&Btr Com
Strips, Backing Metal Signs	- - - - -	2&Btr Com-3 Com
Table Legs, blanks or turned	- - - - -	C Select
Table Tops	- - - - -	C Sel-D Sel
Templates	- - - - -	Selects-Shop
Toys	- - - - -	3 Clear-Selects-Inch Shop
Theater Scenery Strips	- - - - -	1&2 Clear-C Sel-D Sel
Theater Staging	- - - - -	2&Btr Com
Trunks	- - - - -	Selects
Washboard Stock	- - - - -	Short Selects-Inch Shop

Farm Uses

Beehives	- - - - -	3 Clear-Inch Shop
Barn Boards and Battens	- - - - -	*2&Btr Com-3 Com
Brooders, Incubator	- - - - -	*2&Btr Com-3 Com
Chicken Houses	- - - - -	*2&Btr Com-3 Com
Chicken Feeders	- - - - -	*2&Btr Com-3 Com
Corn Cribbing	- - - - -	*2&Btr Com-3 Com
Corn Crib Floors	- - - - -	3 Com
Cornices, Barn	- - - - -	*2&Btr Com-3 Com
Cupolas	- - - - -	D Sel-*2&Btr Com
Feeding Racks	- - - - -	2&Btr Com-3 Com
Fruit Dryers	- - - - -	3 Com
Fruit Drying Trays	- - - - -	2&Btr Com
Garages	- - - - -	See Construction Uses
Gates, Fence	- - - - -	*2&Btr Com-*3 Com
Gateways	- - - - -	C Sel-D Sel-2&Btr Com
Grain Chutes	- - - - -	2&Btr Com
Granaries	- - - - -	2&Btr Com-3 Com
Greenhouses	- - - - -	3 Com

Greenhouse Flats	- - - - -	2&Btr Com
Hay Rack Boards	- - - - -	2&Btr Com-3 Com
Hog Houses	- - - - -	2&Btr Com-3 Com
Ice Houses	- - - - -	3 Com
Market Buildings	- - - - -	3 Com
Rabbit Hutches	- - - - -	3 Com
Roofing	- - - - -	2&Btr Com-3 Com
Seed Bed Boards	- - - - -	2&Btr Com
Sheds	- - - - -	2&Btr Com-3 Com
Shelter, Machinery and Stock	- - - - -	2&Btr Com-3 Com
Siding, Barn	- - - - -	2&Btr Com-3 Com
Siding, Bevel	- - - - -	B&Btr-C Siding-D Siding
Siding, Drop	- - - - -	C&D Sel-*2&Btr Com-*3 Com
Stall Partitions	- - - - -	2&Btr Com-3 Com
Wagon Boxes	- - - - -	C Sel-D Sel
Watering Troughs	- - - - -	2&Btr Com
Well Curbing	- - - - -	2&Btr Com

Miscellaneous

Blackboards	- - - - -	1&2 Clear-C Sel
Beehives	- - - - -	3 Clear-Inch Shop
Boats, joinery and exposed parts	- - - - -	1&2 Clear-C Sel
Box Shook	- - - - -	2 Shop-3 Shop
Concrete Forms	- - - - -	2&Btr Com-3 Com

Display Platforms	- - - - -	*2&Btr Com-3 Com
Doors, Metal Clad	- - - - -	3 Com
Partitions, Office	- - - - -	C Sel-*2&Btr Com
Shelving	- - - - -	C&D Sel-*2&Btr Com-*3 Com
Trellises	- - - - -	C&D Sel-Mouldings
Wood Carvings	- - - - -	Selects-Shop

*To prevent bleeding of knot resins through paint, use WP-578 Knot Sealer. Description on page 16 under Economy Siding.

STANDARD MANUFACTURED SIZES SUGAR PINE

*The thicknesses apply to all widths and lengths, and the widths to all thicknesses.

SELECTS (FINISHING LUMBER) AND COMMON GRADES (BOARDS)

Working	Size, board measure		Dressed Dimensions		Lengths
	Thickness	Width	Thickness	Width	
S4S, S1S2E, S1S1E*	Inches	Inches	Inches	Inches	Feet
	1 (4/4)	4	25/32 (4/4)	3 5/8	6 feet and longer in multiples of 1 or 2 feet.
	1 1/4 (5/4)	6	19/32 (5/4)	5 5/8	
	1 1/2 (6/4)	8	13/32 (6/4)	7 5/8	
	1 3/4 (7/4)	10	19/32 (7/4)	9 5/8	
	2 (8/4)	12	113/16 (8/4)	11 5/8	
S2S & S1S*	Same	Same 13" & wdr.	(See Factory and Shop Sizes below)	(See Rough Sizes below)	Same
S2S & CM*	Same	4	Same	Face 3 1/4 Over-all 3 1/2	Same
	.....	6	.....	5 1/4 5 1/2	
	.....	8	.....	7 1/4 7 1/2	
	.....	10	.....	9 1/4 9 1/2	
	.....	12	.....	11 1/4 11 1/2	
Flooring (D&M)*	Same	4	Same	3 1/4 3 1/2	Same
	.....	6	.....	5 1/4 5 1/2	
Drop Siding & Rustic (S2S & CM)*	1	4	25/32	3 1/4 3 1/2	Same
If 3/8" or 1/2" T&G specified, same over-all widths apply.		6		5 1/4 5 1/2	
		8		7 1/4 7 1/2	
		10		9 1/4 9 1/2	
		12		11 1/4 11 1/2	
Drop Siding & Rustic (Shiplapped)*	Same	4	Same	3 3 1/2	Same
	.....	6	.....	5 5 1/2	
	.....	8	.....	7 7 1/2	
	.....	10	.....	9 9 1/2	
	.....	12	.....	11 11 1/2	
Shiplap*	Same	4	Same	3 3 1/2	Same
	.....	6	.....	5 5 1/2	
	.....	8	.....	7 7 1/2	
	.....	10	.....	9 9 1/2	
	.....	12	.....	11 11 1/2	
Ceiling and Partition (S2S & CM)	(6 8)	4	9/16	3 1/4 3 1/2	Same
	.....	6	.....	5 1/4 5 1/2	
	1	4	25/32	3 1/4 3 1/2	
	.....	6	.....	5 1/4 5 1/2	

BEVEL SIDING GRADES

	(1/2)		Thick Edge 7/16 by 3/16	Thin Edge	
Bevel Siding*	4	.....	3 1/2	
	5	.....	4 1/2	
	6	.....	5 1/2	
Wide Bevel Siding* (Colonial or Bungalow)	8	3/4 by 9/32	7 5/8	May contain even and odd lengths in multiples of 6" and 20% of 3 to 8 1/2 ft.
	10	.....	9 5/8	
	12	.....	11 5/8	
Rabbeted Bevel Siding* (Dolly Varden)	6	11/16 by 5/16	(Rabbet) 5 1/2	Same
	8	13/16 by 13/32	7 1/2	
	10	.....	9 1/2	

FACTORY AND SHOP LUMBER

S2S*	1 (4/4) 1 1/4 (5/4) 1 1/2 (6/4) 1 3/4 (7/4) 2 (8/4) 2 1/2 (10/4) 3 (12/4) 4 (16/4)	5 and wider in random widths	25/32 (4/4) 19/32 (5/4) 13/32 (6/4) 19/32 (7/4) 13/32 (8/4) 23/32 (10/4) 29/32 (12/4) 33/32 (16/4)	(See Rough Sizes below)	6 feet and longer in multiples of 1 or 2 feet.
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MOULDINGS

Standard Patterns. Lengths: 3 to 20 ft. in multiples of one ft. Not over 15% under 8 feet, and bundled separately. PINE PANELING PATTERNS: Pamphlet showing full size details and measurement of Standard Pine Paneling Patterns may be obtained upon application to Western Pine Association, Yeon Building, Portland 4, Oregon. (Publication G-20, "Western Pine Paneling Patterns.")

Minimum Standard Rough Dry Sizes (All Grades)

The minimum standard sizes of rough lumber when dry shall be sufficient to dress to standard sizes.

Rough Dry thicknesses sufficient to dress to standard sizes: 80% of pieces at least 29/32" or more, and not over 20%—28/32" for all 4/4 stock. Rough Dry Stock 5/4 and thicker shall have the same tolerance for surfacing as 4/4 rough dry stock.

Rough Dry Widths sufficient to dress to standard sizes.



Distribution of Sugar Pine

From mills in California and southern Oregon, Sugar Pine is distributed throughout the United States and shipped to several foreign countries. It is stocked by many wholesale distribution yards and retail lumber dealers in a variety of grades and sizes.

Sugar Pine, a genuine White Pine, is fabricated into sash, doors, mouldings, architectural woodwork, foundry patterns, foundry flasks and similar products.

It is available from the mills in straight carload lots and frequently is shipped in mixed cars together with an assortment of Ponderosa Pine and some Associated Woods of the Western Pines—Douglas Fir, White Fir and Incense Cedar. Mills maintain adequate stocks in a wide range of sizes, grades and patterns.

For list of Sugar Pine manufacturers or further information, write to Western Pine Association, Yeon Building, Portland 4, Ore.



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